

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 24.07.96  
Test oil : ISO 4113

Combination No. : 0 402 046 851

Injection pump  
Pump designation : PES6P120A320RS3290  
: -1  
EP type number : 0 412 026 765

Governor  
Governor design. : RQ300/1050PA999-5  
Governor no. : 0 421 801 663

Cust. part No. : CCEP 5137 A 66-216

## Customer-spec. information

Customer : RENAULT V.I.  
Motor : MIHR 062045 B3  
Power KW : 152.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.50  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 18.00  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.80  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.90  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.89  
Tolerance mm : + 0.10

Rated speed rpm : 1127  
guide sleeve  
travel mm : 6.36  
Tolerance mm : + 0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 469

guide sleeve  
travel mm : 4.14  
Tolerance mm : + 0.10

Rated speed rpm : 710  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1380  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 700

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance

cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance

cm<sup>3</sup>/1000S. : + 4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance

cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1120  
Tolerance 1/min : + 5

rack travel mm : -8.80  
Rated speed rpm : 1250  
Tolerance 1/min : + 15

rack travel mm : -12.30  
Tolerance mm : + 0.55



Rated speed rpm : 1350

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#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : -7.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : -10.80  
Rated speed rpm : 450  
Tolerance 1/min :  $\pm$  50

Rated speed rpm : 200

CRT mm max. :  $<$  -6.80

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#### TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : -4.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 0.40  
Tolerance mm :  $\pm$  0.10

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#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -0.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 180  
rack travel mm : -0.25  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 120  
rack travel mm : -0.45  
Tolerance mm :  $\pm$  0.05

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#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  195

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  215

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 14.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1120  
Tolerance 1/min :  $\pm$  5

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

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LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.06.96  
Test oil : ISO 4113

Combination No. : 0 402 046 867

Injection pump  
Pump designation : PES6P120A720RS3345  
EP type number : 0 412 026 779

Governor  
Governor design. : RQ300/1025PA1214  
Governor no. : 0 421 801 784

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8360.46.4669  
Power KW : 196.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 175  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 12.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 550

Rack travel in mm : 14.30  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

A06

rack travel mm : 11.85  
Rated speed rpm : 1085  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1160  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

rack travel mm : 4.00

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 360  
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 5.70

##### TORQUE CONTROL

Rated speed rpm : 1025  
rack travel mm : 12.85  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 12.90  
Tolerance mm : + 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.85  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 450  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 11.85  
Rated speed rpm : 1085  
Tolerance 1/min :  $\pm$  8

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0

A07

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.07.96

Test oil : ISO 4113

Combination No. : 0 402 076 808

## Injection pump

Pump designation : PES6P120A72ORS3371

EP type number : 0 412 026 791

## Governor

Governor design. : RSV450...1050P5A649

Governor no. : 0 421 833 566

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FIAT

Motor : 8365.26.534

Power KW : 130.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

## Overflow quantity

min. l/h : 230

Tolerance l/h : ± 20.0

## Test nozzle holder assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.25

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 126.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000S. : ± 4.0

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Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

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Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.00

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##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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##### CONTROL LEVER

control lever  
position degree : 96.0

##### RATED SPEED

rack travel mm : 8.20  
Rated speed rpm : 1075  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1110  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1125

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##### LOW IDLE

control lever  
position degree : 74.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.00

##### Testing:

Rated speed rpm : 450  
rack travel mm : 4.50  
Tolerance mm : ± 0.10

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##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 9.25  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 9.30  
Tolerance mm : ± 0.10

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##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 425  
rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 8.20  
Rated speed rpm : 1075  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

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#### LOW IDLE

Rated speed rpm : 450  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.07.96  
Test oil : ISO 4113

Combination No. : 0 402 646 667

Injection pump  
Pump designation : PE6P120A320RS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RQV275...1000PA1278K  
Governor no. : 0 421 815 509

Cust. part No. : 1310221/1

Customer-spec. information  
Customer : DAF  
Motor : XF 315 M  
Power KW : 315.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 327.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1077  
guide sleeve  
travel mm : 10.24  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 704  
guide sleeve  
travel mm : 6.53  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 400  
guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1158  
Rack travel in mm : 12.00  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 327.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1065  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

##### LOW IDLE

control lever  
position degree : 72.0

tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.00  
Tolerance mm : +- 0.10

Rated speed rpm : 175

CRT mm min. : > 7.00

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.10  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 12.85  
Tolerance mm : +- 0.05

Rated speed rpm : 700  
rack travel mm : 12.50  
Tolerance mm : +- 0.10

Rated speed rpm : 600  
rack travel mm : 11.95  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
rack travel mm : 11.50  
Tolerance mm : +- 0.10

Rated speed rpm : 1000  
rack travel mm : 13.10  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.10  
Tolerance mm : +- 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 980  
rack travel mm : 7.75  
Tolerance mm : +- 0.20

Rated speed rpm : 980

Pressure hPa : 760  
rack travel mm : 11.50  
Tolerance mm : +- 0.05

Pressure hPa : 360  
rack travel mm : 8.75  
Tolerance mm : +- 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1065  
Tolerance 1/min : +- 5

---

#### LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm3/1000 strokes : 17.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.07.96  
Test oil : ISO 4113

Combination No. : 0 402 646 671

Injection pump  
Pump designation : PE6P120A320RS7421  
EP type number : 0 412 626 956

Governor  
Governor design. : RQV275...1150PA1297K  
Governor no. : 0 421 815 524

Cust. part No. : 1316184/1

Customer-spec. information  
Customer : DAF  
Motor : PF 205 M  
Power KW : 205.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1130

Rack travel in mm : 12.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1206  
guide sleeve  
travel mm : 10.12  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 813  
guide sleeve  
travel mm : 6.81  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1329  
Rack travel in mm : 11.10  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1130  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.10  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 71.0

tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 175

CRT mm min. :  $>$  7.50

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1130  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 850  
Pressure hPa : 1500  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -

Rated speed rpm : 850  
rack travel mm : 8.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850

Pressure hPa : 420  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 150  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 231.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 11.10  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

---

LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.07.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 672  
  
Injection pump  
Pump designation : PE6P120A320RS7421  
EP type number : 0 412 626 956  
  
Governor  
Governor design. : RQV275...1150PA1298K  
Governor no. : 0 421 815 525

Cust. part No. : 1316185/1

## Customer-spec. information

Customer : DAF  
Motor : PF 183 M  
Power KW : 183.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1130

Rack travel in mm : 10.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1200  
guide sleeve  
travel mm : 10.06  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 811  
guide sleeve  
travel mm : 6.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1343  
Rack travel in mm : 9.80  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1130  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.80  
Rated speed rpm : 1190  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1285  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 72.0

tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 175

CRT mm min. :  $>$  7.50

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 1130  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 850  
Pressure hPa : 1500  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -

Rated speed rpm : 850  
rack travel mm : 7.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850

Pressure hPa : 350  
rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 130  
rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.0  
Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1190  
Tolerance 1/min :  $\pm$  5

---

LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.07.96  
Test oil : ISO 4113  
Combination No. : 0 402 646 779  
Injection pump  
Pump designation : PE6P120A320LS7872  
EP type number : 0 412 626 912

Governor  
Governor design. : RQ300/1000PA1163  
Governor no. : 0 421 801 734

Cust. part No. : B0165-6-4

Customer-spec. information  
Customer : KHD  
Motor : BF6M1015C  
Power KW : 300.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 14.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.73  
Tolerance mm : +- 0.10

Rated speed rpm : 1051  
guide sleeve  
travel mm : 6.36  
Tolerance mm : +- 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 6.00  
Tolerance mm : +- 0.10

Rated speed rpm : 388  
guide sleeve  
travel mm : 4.79  
Tolerance mm : +- 0.10

Rated speed rpm : 460  
guide sleeve  
travel mm : 6.00

Tolerance mm : +- 0.10

Rated speed rpm : 1210  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 465

Rack travel in mm : 20.00  
Tolerance mm : +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1045  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1220

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 365  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  8.00

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1700  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Rated speed rpm : 400  
Pressure hPa : 365  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1000  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

A25

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.07.96  
Test oil : ISO 4113  
Combination No. : 0 402 646 780  
Injection pump  
Pump designation : PE6P120A320LS7872  
EP type number : 0 412 626 912

Governor  
Governor design. : RQ300/950PA1121  
Governor no. : 0 421 801 701

Cust. part No. : 04221524KY016517

## Customer-spec. information

Customer : KHD  
Motor : BF6M1015/C  
Power KW : 300.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 14.50  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 362.0



---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.80  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.23  
Tolerance mm : +- 0.10

Rated speed rpm : 1001  
guide sleeve  
travel mm : 6.36  
Tolerance mm : +- 0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm : +- 0.10

Rated speed rpm : 385  
guide sleeve  
travel mm : 5.22  
Tolerance mm : +- 0.10

Rated speed rpm : 450

guide sleeve  
travel mm : 6.00  
Tolerance mm : +- 0.10

Rated speed rpm : 1150  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 700

Rack travel in mm : 20.00  
Tolerance mm : +- 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 362.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 101.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.50  
Rated speed rpm : 995  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1070  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1165

---

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 355  
Tolerance 1/min : +- 20

Rated speed rpm : 200  
CRT mm min. : > 7.10

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 14.50  
Tolerance mm : +- 0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1700  
rack travel mm : 14.50  
Tolerance mm : +- 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.00  
Tolerance mm : +- 0.20

Rated speed rpm : 400  
Pressure hPa : 550  
rack travel mm : 10.95  
Tolerance mm : +- 0.20

Pressure hPa : 1000  
rack travel mm : 13.10  
Tolerance mm : +- 0.05

#### START CUT-OUT

Rated speed rpm : > 100

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Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm3/1000 strokes : 240.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

#### BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 995  
Tolerance 1/min : +- 5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : +- 0.75  
Del. quantity  
cm3/1000 strokes : 200.0  
Tolerance  
cm3/1000 strokes : +- 20.0  
Check tolerance  
cm3/1000S. : +- 24.0

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm3/1000 strokes : 20.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.07.96  
Test oil : ISO 4113  
Combination No. : 0 402 648 973  
Injection pump  
Pump designation : PE8P120A320LS7873  
EP type number : 0 412 628 880

Governor  
Governor design. : RQ300/950PA1121  
Governor no. : 0 421 801 701

Cust. part No. : 04221534KY0165-17

Customer-spec. information  
Customer : KHD  
Motor : BF8M1015/C  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
                  : - 5- 4- 3

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 15.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 380.0

<hr/>	
Tolerance	
cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: +- 4.0
<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm3/1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 5.00
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 20.0
Tolerance	
cm3/1000 strokes	: +- 3.0
Check tolerance	
cm3/1000S.	: +- 6.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 2.23
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 1001
guide sleeve	
travel mm	: 6.36
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 950
guide sleeve	
travel mm	: 6.00
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 385
guide sleeve	
travel mm	: 5.22
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 450

guide sleeve	
travel mm	: 6.00
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 1150
guide sleeve	
travel mm	: 11.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 700
<hr/>	
Rack travel in mm	: 20.00
Tolerance mm	: +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure	
hPa	: 1600
Del. quantity	
cm3/1000 strokes	: 380.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 103.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 14.30
Rated speed rpm	: 995
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1070
Tolerance 1/min	: +- 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1150

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 360  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200  
CRT mm min. :  $>$  7.30

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 15.35  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1600  
rack travel mm : 15.35  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400  
Pressure hPa : 570  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 1150  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $>$  100

Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 14.30  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.09.95  
Test oil : ISO 4113

Combination No. : 0 402 896 016

Injection pump  
Pump designation : PE6P120A320RS8034  
EP type number : 0 412 826 032

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 028

Cust. part No. : 8194088 P03 rel 8/95

Customer-spec. information  
Customer : VOLVO-TRUCK  
Power KW : 265.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0



Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4

Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

#### (C) INJECTION PUMP WITH POSITIONER

##### TEST POINT V1

Rated speed rpm : 600  
Uact V : 2.800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
Uact V : 2.800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Rated speed rpm : 950  
Uact V : 2.200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0

##### TEST POINT L1

Rated speed rpm : 250  
Uact V : 1.470  
Tolerance Volt : +/- 0.060

Check tolerance  
Volt :  $\pm 0.060$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.07.96  
Test oil : ISO 4113  
Combination No. : 0 402 946 023  
Injection pump  
Pump designation : PES6P120A320RS8038  
EP type number : 0 412 926 025  
Governor  
Governor design. : RQ250/1000PA1265-2  
Governor no. : 0 421 801 808

Cust. part No. : 1385102

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 9.15

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.40

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 287.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 9.0
<hr/>	
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 14.0
<hr/>	
Rated speed rpm	: 250
<hr/>	
Rack travel in mm	: 6.80
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 25.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 250
guide sleeve travel mm	: 1.48
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1055
guide sleeve travel mm	: 4.82
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 970
guide sleeve travel mm	: 4.50
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 358
guide sleeve travel mm	: 3.50

B10

Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 490
guide sleeve travel mm	: 4.50
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1129
guide sleeve travel mm	: 5.50
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1600
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 600
Rack travel in mm	: 16.00
Tolerance mm	: ± 1.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: 1500
Del. quantity cm <sup>3</sup> /1000 strokes	: 287.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 9.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 14.0

---

CONTROL LEVER

control lever position degree	: 38.0
tolerance degree	: ± 4.0
<hr/>	
control lever position degree	: 106.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.40
Rated speed rpm	: 1045
Tolerance 1/min	: ± 5

rack travel mm : 4.00  
Rated speed rpm : 1220  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 85.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 23.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 150

CRT mm min. :  $>$  9.00

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 290  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 800  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $<$  170  
Rated speed rpm :  $>$  100

Check  
speed 1/min :  $<$  190  
Check  
speed 1/min :  $>$  80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### BREAKAWAY

Rack travel in mm : 11.40  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.07.96  
Test oil : ISO 4113  
Combination No. : 0 402 996 307  
Injection pump  
Pump designation : PES6P120A720RS8512  
: -2  
EP type number : 0 412 926 212  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 024  
Cust. part No. : CCEP 5156 66-242

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : 062465A42B42C42

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 084  
Inlet press. bar : 3.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : -0.15  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

betw. rack trav.  
mm : 20.50

and maximum rack  
travel : 12.00  
Difference \* CS : 3.10

---

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in

stop position.  
CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900  
Uact V : 3.050  
Del. quantity  
cm3/1000 strokes : 310.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 5.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625  
Uact V : 3.260  
Del. quantity  
cm3/1000 strokes : 392.0  
Tolerance  
cm3/1000 strokes : +/- 10.0  
Check tolerance  
cm3/1000S. : +/- 12.0  
Speed  
Tolerance  
cm3/1000 strokes : 16.0  
Check tolerance  
cm3/1000S. : 18.0



TEST POINT L1

Rated speed rpm	:	325
Uact V	:	1.310
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.070
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	33.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 3.0
Speed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	6.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	14.0

---

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	195.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 19.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 22.0
Speed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	40.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	50.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.07.96  
Test oil : ISO 4113  
Combination No. : 0 403 244 054  
Injection pump  
Pump designation : PES4MW100/720RS1525  
EP type number : 0 413 204 022  
Governor  
Governor design. : RQV300...1300MW150  
Governor no. : 0 420 083 334

Cust. part No. : 0260747002

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power kW : 103.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 3.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.91  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1354  
guide sleeve  
travel mm : 7.15  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1130  
guide sleeve  
travel mm : 5.40  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 3.72  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1679  
guide sleeve  
travel mm : 12.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1780  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1475

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1575

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. : > 4.50

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
  
Pressure hPa : 450  
rack travel mm : 2.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 250  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220  
  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 260

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750

Del. quantity  
cm3/1000 strokes : 117.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 66.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 150.0  
Tolerance  
cm3/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm3/1000S. :  $\pm$  8.0

---

##### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm3/1000 strokes : 12.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.07.96

Test oil : ISO 4113

Combination No. : 0 403 476 131

## Injection pump

Pump designation : PES6MW100/320RS1224

EP type number : 0 413 406 210

## Governor

Governer design. : RSV300...1100MW1A358

Governer no. : 0 420 085 234

Cust. part No. : 11030789 P03

## Customer-spec. information

Customer : VME

Motor : TD 63KDE

Power KW : 88.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

## Test nozzle holder assembly

: 0 681 343 009

## Opening pressure

bar : 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.05

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 106.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000s. : ± 3.0

## Speed

## Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 315

Rack travel in mm : 6.10

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 17.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm :  $\pm$  0.35

governor spring  
pre-tension  
click setting x : 3.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1500

Del. quantity  
cm3/1000 strokes : 106.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

---

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.30

Rated speed rpm : 1140

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1170

Tolerance 1/min :  $\pm$  15

rack travel mm : 1.00

Tolerance mm :  $\pm$  0.70

Rated speed rpm : 1340

rack travel mm : 4.00

Rated speed rpm : 1195

---

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 5.60

##### Testing:

Rated speed rpm : 315

rack travel mm : 6.10

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 475

Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1100

rack travel mm : 12.35

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

rack travel mm : 13.35

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 820  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 690  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 290  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 120  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -

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Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 1140  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 315  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.07.96  
Test oil : ISO 4113  
Combination No. : 0 403 476 144  
Injection pump  
Pump designation : PES6MW100/720RS1131  
: -1  
EP type number : 0 413 406 165  
Governor  
Governor design. : RSV750...1200MWOA329  
: -16  
Governor no. : 0 420 085 288  
Cust. part No. : 0270740402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 148.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1180

Rack travel in mm : 13.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 750

Rack travel in mm : 4.60

Tolerance mm :  $\pm$  0.25

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm :  $\pm$  0.35

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 102.0

##### RATED SPEED

rack travel mm : 1.00

Tolerance mm :  $\pm$  0.70

Rated speed rpm : 1400

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1230

rack travel mm : 12.10

Rated speed rpm : 1314

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1231

rack travel mm : 12.10

Rated speed rpm : 1315

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1232

rack travel mm : 12.10

Rated speed rpm : 1316

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1233

rack travel mm : 12.10

Rated speed rpm : 1317

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1238

rack travel mm : 12.10

Rated speed rpm : 1322

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1239

rack travel mm : 12.10

Rated speed rpm : 1323

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

##### LOW IDLE

control lever  
position degree : 84.0

#### Testing:

Rated speed rpm : 750  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.25

rack travel mm : 2.00  
Rated speed rpm : 775  
Tolerance 1/min :  $\pm$  25

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

#### TORQUE CONTROL

Rated speed rpm : 1180  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 2.20  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 350  
rack travel mm : 1.10  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

#### LOW IDLE

Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.07.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 390  
Injection pump  
Pump designation : PES6A95D410RS2886  
EP type number : 9 400 084 039  
Governor  
Governor design. : RQV300...1300AB1310L  
Governor no. : 9 420 080 388

Cust. part No. : 0260746902

Customer-spec. information  
Customer : MBB  
Motor : OM 366LA/EURO I  
Power KW : 150.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 8.10

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 13.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 1.05

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500

guide sleeve

travel mm : 8.55

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

guide sleeve

travel mm : 2.55

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 750

guide sleeve

travel mm : 4.20

Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : 900

Del. quantity

cm<sup>3</sup>/1000 strokes : 95.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 62.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 110.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.80

Rated speed rpm : 1385

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1530

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1650

##### LOW IDLE

control lever

position degree : 70.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 21.0

tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300

rack travel mm : 8.10

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 9.70

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.85  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 700  
rack travel mm : 12.25  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 800  
rack travel mm : 12.25  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1125  
rack travel mm : 11.85  
Tolerance mm :  $\pm 0.05$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.25  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 160  
rack travel mm : 0.50  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 350  
rack travel mm : 1.45  
Tolerance mm :  $\pm 0.05$

---

##### START CUT-OUT

Rated speed rpm :  $> 100$   
Rated speed rpm :  $< 250$

Check  
speed 1/min :  $> 80$   
Check  
speed 1/min :  $< 260$

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.0$

---

#### BREAKAWAY

Rack travel in mm : 10.80  
Rated speed rpm : 1385  
Tolerance 1/min :  $\pm 5$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.90  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 7.5$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 10.0$

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.07.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 391  
Injection pump  
Pump designation : PES6A95D410RS2886  
EP type number : 9 400 084 039  
Governor  
Governor design. : RQV300...1300AB1310L  
Governor no. : 9 420 080 388

Cust. part No. : 0260745802

Customer-spec. information  
Customer : MBB  
Motor : OM 366LA/EURO I  
Power KW : 150.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 8.10

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 13.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 1.05

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500

guide sleeve

travel mm : 8.55

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

guide sleeve

travel mm : 2.55

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 750

guide sleeve

travel mm : 4.20

Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : 900

Del. quantity

cm<sup>3</sup>/1000 strokes : 95.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 62.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 110.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.80

Rated speed rpm : 1385

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1530

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1650

##### LOW IDLE

control lever

position degree : 70.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 21.0

tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300

rack travel mm : 8.10

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  9.70

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1125  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 160  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350  
rack travel mm : 1.45  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 250

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 260

C05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 10.80  
Rated speed rpm : 1385  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.07.96  
Test oil : ISO 4113  
Combination No. : 0 400 866 229  
Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884  
Governor  
Governor design. : RSV325...1250A5C873L  
Governor no. : 0 420 232 628

Cust. part No. : 0423 2077 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : BF6L 913  
Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder assembly : 0 681 343 009

Opening pressure bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 9.60  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 14.5  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 4.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 3.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm3/1000 strokes : 82.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1295  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1520

rack travel mm : 4.00  
Rated speed rpm : 1375

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 9.10

##### Testing:

Rated speed rpm : 325  
rack travel mm : 9.60  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 520  
Tolerance 1/min : +- 30

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.00  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 14.10  
Tolerance mm : +- 0.10

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm : +- 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 250  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

#### LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 800  
Injection pump  
Pump designation : PES6P120A72ORS3367  
EP type number : 0 412 026 788  
Governor  
Governor design. : RSV450...1100P2A640  
Governor no. : 0 421 833 552

Cust. part No. : RE66248

Customer-spec. information  
Customer : DEERE  
Motor : 6081HDW04  
Power KW : 135.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

C10

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1100



---

Rack travel in mm : 11.80  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 450

---

Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

governor spring  
pre-tension  
click setting x : 4.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

##### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1220  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1220

---

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.90

##### Testing:

Rated speed rpm : 450  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1300

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 1000  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 720  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 10.80  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 450  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.07.96  
Test oil : ISO 4113

Combination No. : 0 402 076 803

Injection pump  
Pump designation : PES6P100A320LS3317  
EP type number : 0 412 006 706

Governor  
Governor design. : RSV400...1200P5A645  
Governor no. : 0 421 833 558

Cust. part No. : 1825466c91

Customer-spec. information  
Customer : NAVISTAR  
Motor : DTA-466  
Power KW : 156.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 400

Rack travel in mm : 5.30

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 12.40  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1310

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 14.15  
Tolerance mm : ± 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 1200  
Pressure hPa : 1000

## MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 800  
rack travel mm : 9.30  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1200

Pressure hPa : 650  
rack travel mm : 13.30  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 315  
rack travel mm : 10.70  
Tolerance mm :  $\pm 0.05$

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

## BREAKAWAY

Rack travel in mm : 12.40  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm 5$

## STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 20.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 25.0$

## LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.5$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.07.96  
Test oil : ISO 4113  
Combination No. : 0 402 746 617  
Injection pump  
Pump designation : PES6P120A720RS7423  
EP type number : 0 412 726 963  
Governor  
Governor design. : RQV325...975PA909  
: -12K  
Governor no. : 0 421 815 531  
Cust. part No. : 313GC5224-P10

Customer-spec. information  
Customer : MACK  
Motor : EN7300A  
Power KW : 223.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 084  
Inlet press. bar : 2.8  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm3/1000S. :  $\pm$  4.0

---

Speed  
Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.27  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1030  
guide sleeve  
travel mm : 8.84  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 524  
guide sleeve  
travel mm : 3.30  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 390  
guide sleeve  
travel mm : 2.30  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1430  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 975  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 202.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.60  
Rated speed rpm : 1020  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1250

---

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 325  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 225

CRT mm min. : > 4.80

Rated speed rpm : 400

---

##### TORQUE CONTROL

Rated speed rpm : 975  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 12.00

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 500  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 975  
Pressure hPa : 1200  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 975  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 975

Pressure hPa : 460  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 235  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 275

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 285

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

##### BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1020  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  30.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.07.96  
Test oil : ISO 4113

Combination No. : 9 400 030 734

Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214

Governor  
Governor design. : RSV475...1100A0C847R  
Governor no. : 9 420 034 713

Cust. part No. : 3930153

## Customer-spec. information

Customer : CDC  
Motor : 4BT3.9  
Power KW : 74.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.5

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Spread  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

Rated speed rpm : 500

Rack travel in mm : 5.65  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 20.5

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.5

Spread  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm3/1000 strokes : 109.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0  
Spread

C20

Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 6.5

CONTROL LEVER

control lever  
position degree : 101.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.70  
Rated speed rpm : 1165  
Tolerance 1/min : +- 5

rack travel mm : 6.00  
Rated speed rpm : 1230  
Tolerance 1/min : +- 5

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1375

LOW IDLE

control lever  
position degree : 81.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.15

Testing:

Rated speed rpm : 500  
rack travel mm : 5.65  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.75  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 13.70

Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 750  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 750  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750

Pressure hPa : 650  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.07.96  
Test oil : ISO 4113  
Combination No. : 0 401 846 760  
Injection pump  
Pump designation : PE6P110A320RS3108X  
EP type number : 0 411 816 730  
Governor  
Governor design. : RQV250...1100PA920  
: -2  
Governor no. : 0 421 813 779  
Cust. part No. : 469609-P09 v. 08/95

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : THD102

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Vibration damper  
(RoBo diaphragm) : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 046  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holder assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 9.70  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.15  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1175

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree : +- 4.0

control lever  
position degree : 119.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 11.35  
Rated speed rpm : 1165  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : +- 4.0

control lever  
position degree : 12.0  
tolerance degree : +- 4.0

##### Testing:

Rated speed rpm : 250  
rack travel mm : 5.15  
Tolerance mm : +- 0.10

Rated speed rpm : 150

CRT mm min. : > 6.30

Rated speed rpm : 330

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.35  
Tolerance mm : +- 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 740  
rack travel mm : 2.50  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 250  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.35  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.07.96

Test oil : ISO 4113

Combination No. : 0 401 876 803

## Injection pump

Pump designation : PE6P110A320RS3266

EP type number : 0 411 816 777

## Governor

Governer design. : RSV350...1250POA578

Governer no. : 0 421 833 434

Cust. part No. : 866200-PO5 v.05.96

## Customer-spec. information

Customer : PENTA

Motor : TWD 630ME

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper

(RoBo diaphragm) : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde  
assembly

: 1 688 901 101

Opening pressure  
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.45

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 9.60

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.00

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 132.0

Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 3.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 8.0
Rated speed rpm	: 350
Del. quantity	
cm3/1000 strokes	: 19.0
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000S.	: +- 5.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
governor spring	
pre-tension	
click setting x	: 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm3/1000 strokes	: 132.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 3.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0

Check tolerance	
cm3/1000S.	: 8.0

CONTROL LEVER

control lever	
position degree	: 46.0
tolerance degree	: +- 4.0
control lever	
position degree	: 96.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 11.00
Rated speed rpm	: 1280
Tolerance 1/min	: +- 5
rack travel mm	: 4.00
Rated speed rpm	: 1345
Tolerance 1/min	: +- 15
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1340

LOW IDLE

control lever	
position degree	: 68.0
tolerance degree	: +- 4.0
control lever	
position degree	: 18.0
tolerance degree	: +- 4.0

Testing:

rack travel mm	: 2.00
Rated speed rpm	: 480
Tolerance 1/min	: +- 30

SET IDLE AUXILIARY SPRING

rack travel mm	: 2.00
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TORQUE CONTROL

Rated speed rpm	: 700
rack travel mm	: 12.00
Tolerance mm	: +- 0.05



---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 2.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 230  
rack travel mm : 0.20  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1280  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.07.96  
Test oil : ISO 4113

Combination No. : 0 402 044 700

Injection pump  
Pump designation : PES4P110A320RS3350  
EP type number : 0 412 014 700

Governor  
Governor design. : RQV350...1400PA1221K  
Governor no. : 0 421 815 472

Cust. part No. : 16700-D8703 / M  
: -2004

Customer-spec. information  
Customer : NMI  
Motor : B4.4C EURO II  
Power kW : 101.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : 180.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 4

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 15.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 9.40  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.46  
Tolerance mm : +- 0.20

Rated speed rpm : 1417  
guide sleeve  
travel mm : 9.99  
Tolerance mm : +- 0.15

Rated speed rpm : 994  
guide sleeve  
travel mm : 6.77  
Tolerance mm : +- 0.25

Rated speed rpm : 610  
guide sleeve  
travel mm : 3.96  
Tolerance mm : +- 0.25

Rated speed rpm : 1730

guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1515

Rack travel in mm : 14.50  
Tolerance mm : +- 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure

hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree : +- 4.0

control lever  
position degree : 122.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 14.40  
Rated speed rpm : 1410  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1585  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1640

---

##### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 26.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
CRT mm min. :  $>$  10.70

Rated speed rpm : 500

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 15.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 780  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1000  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250  
rack travel mm : 15.40  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1300  
Pressure hPa : 1500  
rack travel mm : 15.40  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1300  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1300

Pressure hPa : 660  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 520  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $>$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $>$  290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 780  
Del. quantit.  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 16.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 14.40  
Rated speed rpm : 1410  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.07.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 795  
Injection pump  
Pump designation : PES6P120A720RS3369  
EP type number : 0 412 026 789  
Governor  
Governor design. : RSV450...1075P5A631  
Governor no. : 0 421 833 538

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8365.26.584  
Power KW : 144.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 034  
Inlet press. bar : 2.5  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1075  
Rack travel in mm : 10.75  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 5.90

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075

Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 9.60

Rated speed rpm : 1150

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1195

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1235

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 5.40

Testing:

Rated speed rpm : 450

rack travel mm : 5.90

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 650

Tolerance 1/min : ± 50

##### TORQUE CONTROL

Rated speed rpm : 1075

rack travel mm : 10.75

Tolerance mm : ± 0.05

Rated speed rpm : 700

rack travel mm : 10.80

Tolerance mm : ± 0.10

Rated speed rpm : 320

rack travel mm : 11.30

Tolerance mm : ± 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 515  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 9.60  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 450  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.07.96

Test oil : ISO 4113

Combination No. : 0 402 086 701

## Injection pump

Pump designation : PES6P100B321RS3366

EP type number : 0 412 006 712

## Governor

Governer design. : RSV400...1125POA644

Governer no. : 0 421 833 557

Cust. part No. : 51.11103-7534

## Customer-spec. information

Customer : MAN

Motor : D0826 LE531

Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 150

Tolerance l/h : ± 10.0

## Test nozzle holde assembly

: 1 688 901 103

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.30

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 13.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.50

## Start of delivery blocking

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 14.50

Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 400

Rack travel in mm : 5.30  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 5.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 101.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1175  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1295  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1415

rack travel mm : 4.00  
Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.70

Testing:

Rated speed rpm : 400  
rack travel mm : 5.30  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 525  
Tolerance 1/min : +- 30

---

#### TORQUE CONTROL

Rated speed rpm : 925  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1125  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1025  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 150  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 800  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1125  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.07.96  
Test oil : ISO 4113

Combination No. : 0 402 646 617

Injection pump  
Pump designation : PE6P130A320RS7282  
EP type number : 0 412 636 825

Governor  
Governor design. : RQV300...900PA1059  
Governor no. : 0 421 814 049

Cust. part No. : 865851-P05 V.10.94

Customer-spec. information  
Customer : PENTA  
Motor : TAD 1230 P

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 8.30  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 352.0

Tolerance  
cm3/1000 strokes : + 1.5

Check tolerance  
cm3/1000S. : + 5.0

Spreed  
Tolerance  
cm3/1000 strokes : 7.0

Check tolerance  
cm3/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.00  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 23.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spreed  
Tolerance  
cm3/1000 strokes : 7.0

Check tolerance  
cm3/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.81  
Tolerance mm : + 0.25

Rated speed rpm : 928  
guide sleeve  
travel mm : 7.72  
Tolerance mm : + 0.25

Rated speed rpm : 650  
guide sleeve  
travel mm : 5.16  
Tolerance mm : + 0.25

Rated speed rpm : 315  
guide sleeve  
travel mm : 1.98  
Tolerance mm : + 0.25

Rated speed rpm : 365  
guide sleeve  
travel mm : 2.54

Tolerance mm : + 0.25

Rated speed rpm : 420  
guide sleeve  
travel mm : 3.17  
Tolerance mm : + 0.25

Rated speed rpm : 1210  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 980

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 2000

Del. quantity  
cm3/1000 strokes : 352.0

Tolerance  
cm3/1000 strokes : + 1.5

Check tolerance  
cm3/1000S. : + 5.0

Spreed  
Tolerance  
cm3/1000 strokes : 7.0

Check tolerance  
cm3/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree : + 4.0

control lever  
position degree : 117.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 915  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1100

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 18.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

rack travel mm :  $>$  5.60  
Rated speed rpm : 200

Rated speed rpm : 365

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 640  
rack travel mm : 8.55  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 1420  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

#### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 915  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.07.96  
Test oil : ISO 4113

Combination No. : 0 402 846 064

Injection pump  
Pump designation : PE6P120A32ORS8030  
EP type number : 0 412 826 030

Governor  
Governor design. : RQV300...1100PA1017  
: -2  
Governor no. : 0 421 814 102

Cust. part No. : 3825157-P04 v.05.96

Customer-spec. information  
Customer : PENTA  
Motor : TWD 1230 ME  
Power KW : 275.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 8.10  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.90  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0



---

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm3/1000S. :  $\pm$  4.0

---

Speed  
Tolerance  
cm3/1000 strokes : 8.0

---

Check tolerance  
cm3/1000S. : 11.0

---

Rated speed rpm : 325

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 20.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.5

Check tolerance  
cm3/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.41  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1182  
guide sleeve  
travel mm : 8.71  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 834  
guide sleeve  
travel mm : 5.40  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 385  
guide sleeve  
travel mm : 1.98  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 435

guide sleeve  
travel mm : 2.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 3.11  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1400  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  3.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1800  
Del. quantity  
cm3/1000 strokes : 277.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 11.0

---

CONTROL LEVER

control lever  
position degree : 46.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 10.90  
Rated speed rpm : 1080  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1190

Tolerance 1/min : +- 15  
rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : +- 4.0

control lever  
position degree : 12.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.60  
Tolerance mm : +- 0.10

Rated speed rpm : 225

CRT mm min. : > 7.20

Rated speed rpm : 360

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.90  
Tolerance mm : +- 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1800  
rack travel mm : 11.90  
Tolerance mm : +- 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.10  
Tolerance mm : +- 0.20

Rated speed rpm : 500

Pressure hPa : 1250

rack travel mm : 3.50  
Tolerance mm : +- 0.20

Pressure hPa : 340  
rack travel mm : 0.25  
Tolerance mm : +- 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

#### BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 1080  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.10  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 21.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 25.0

---

#### LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.07.96  
Test oil : ISO 4113

Combination No. : 0 402 846 072

Injection pump  
Pump designation : PE6P120A320RS8024  
EP type number : 0 412 826 025

Governor  
Governor design. : RQV250...1100PA1072  
: -6K  
Governor no. : 0 421 815 968

Cust. part No. : 8192537P01 v.04.96

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : D7A 275  
Power KW : 202.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.40  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 7.00  
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.70  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 212.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

<hr/>	
Check tolerance	
cm3/1000S.	: +- 4.0
<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
<hr/>	
Check tolerance	
cm3/1000S.	: 11.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 4.60
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 23.0
Tolerance	
cm3/1000 strokes	: +- 2.5
Check tolerance	
cm3/1000S.	: +- 5.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 2.15
Tolerance mm	: +- 0.20
<hr/>	
Rated speed rpm	: 1176
guide sleeve	
travel mm	: 10.16
Tolerance mm	: +- 0.15
<hr/>	
Rated speed rpm	: 733
guide sleeve	
travel mm	: 5.39
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 390
guide sleeve	
travel mm	: 3.22
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 1390
guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1246
Rack travel in mm	: 12.75
Tolerance mm	: +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm3/1000 strokes	: 212.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 11.0

CONTROL LEVER

control lever	
position degree	: 66.0
tolerance degree	: +- 4.0
<hr/>	
control lever	
position degree	: 119.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 12.70
Rated speed rpm	: 1165
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1255
Tolerance 1/min	: +- 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1320

LOW IDLE

control lever	
position degree	: 73.0

tolerance degree :  $\pm$  4.0

control lever  
position degree : 18.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. : > 6.50

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 300  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 7.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100

Pressure hPa : 1130  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 120  
rack travel mm : 0.25

Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 226.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.70  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.07.96

Test oil : ISO 4113

Combination No. : 0 402 896 015

## Injection pump

Pump designation : PE6P120A320RS8033

EP type number : 0 412 826 031

## Governor

Governer design. : RE30

Governer no. : 0 421 890 027

Cust. part No. : 425758 P04 v. 09/95

## Customer-spec. information

Customer : VOLVO-TRUCK

Motor : DH 10 A

Power KW : 265.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

## Test nozzle holde assembly

: 1 688 901 103

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

Pump-specific values in Section (B) must be observed!

## (A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.40

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Barrel no. : 1

## (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

## TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min<sup>-1</sup>: 0



Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4

Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600  
Uact V : 2.800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
Uact V : 2.800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Rated speed rpm : 950  
Uact V : 2.200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 250  
Uact V : 1.470  
Tolerance Volt : +/- 0.060

Check tolerance  
Volt :  $\pm 0.060$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.07.96  
Test oil : ISO 4113

Combination No. : 0 402 896 018

Injection pump  
Pump designation : PE6P130A320RS8046  
EP type number : 0 412 836 011

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 030

Cust. part No. : 3826196 P01 v.02/96

Customer-spec. information  
Customer : PENTA  
Motor : TAMD 122 EDC  
Power KW : 450.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

## TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4

Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

#### (C) INJECTION PUMP WITH POSITIONER

##### TEST POINT V1

Rated speed rpm : 600  
Uact V : 2.900  
Del. quantity  
cm3/1000 strokes : 337.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 11.0

##### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1125  
Uact V : 2.900  
Del. quantity  
cm3/1000 strokes : 270.0  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 10.0  
Check tolerance  
cm3/1000S. : 14.0

Rated speed rpm : 900  
Uact V : 1.600  
Del. quantity  
cm3/1000 strokes : 105.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 10.0  
Check tolerance  
cm3/1000S. : 14.0

##### TEST POINT L1

Rated speed rpm : 250  
Uact V : 1.400  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.060  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.07.96  
Test oil : ISO 4113  
Combination No. : 0 403 244 046  
Injection pump  
Pump designation : PES4MW100/720RS1525  
EP type number : 0 413 204 022  
Governor  
Governor design. : RQV300...1300MW132  
: -13  
Governor no. : 0 420 083 330  
Cust. part No. : 0260746202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

D28

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 20.00  
Tolerance mm : ± 1.00  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 13.30  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 3.90

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 12.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm3/1000 strokes : 2.0

Check tolerance  
cm3/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 0.91

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1354

guide sleeve

travel mm : 7.15

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1130

guide sleeve

travel mm : 5.40

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 610

guide sleeve

travel mm : 2.96

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 660

guide sleeve

travel mm : 3.31

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 780

guide sleeve

travel mm : 3.72

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1679

guide sleeve

travel mm : 12.00

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1780

guide sleeve

travel mm : 13.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1445

Rack travel in mm : 10.00

Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : 1200

Del. quantity

cm3/1000 strokes : 119.0

Tolerance

cm3/1000 strokes :  $\pm$  1.0

Check tolerance

cm3/1000S. :  $\pm$  4.0

Speed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 113.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1345

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1475

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1550

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  4.50

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 450  
rack travel mm : 2.20  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 250  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  220

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 66.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

#### LOW IDLE

Rated speed rpm : 300



Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.07.96  
Test oil : ISO 4113  
Combination No. : 0 403 244 047  
Injection pump  
Pump designation : PES4MW100/720RS1525  
EP type number : 0 413 204 022

Governor  
Governor design. : RQV300...1300MW132  
: -13  
Governor no. : 0 420 083 330

Cust. part No. : 0260746302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 3.90

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 12.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm3/1000 strokes : 2.0

Check tolerance  
cm3/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.91  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1354  
guide sleeve  
travel mm : 7.15  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1130  
guide sleeve  
travel mm : 5.40  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 610  
guide sleeve  
travel mm : 2.96  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 660  
guide sleeve  
travel mm : 3.31  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 3.72  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1679  
guide sleeve  
travel mm : 12.00

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1780  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1445

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 119.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 113.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1550

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.90  
Tolerance mm : +- 0.10

Rated speed rpm : 200  
CRT mm min. : > 4.50

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm : +- 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm : +- 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
Pressure hPa : 450  
rack travel mm : 2.20  
Tolerance mm : +- 0.10

Pressure hPa : 250  
rack travel mm : 0.50  
Tolerance mm : +- 0.10

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 220

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 118.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Spread  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 66.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0

#### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min : +- 5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 150.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 8.0

#### LOW IDLE

Rated speed rpm : 300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.07.96  
Test oil : ISO 4113  
Combination No. : 0 403 244 050  
Injection pump  
Pump designation : PES4MW100/72ORS1525  
EP type number : 0 413 204 022

Governor  
Governor design. : RQV300...1200MW132  
: -14  
Governor no. : 0 420 083 331

Cust. part No. : 0260747502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power kW : 103.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 119.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 4.0

Speed  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 3.90

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 12.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance

cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 0.91

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1254

guide sleeve

travel mm : 7.92

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 970

guide sleeve

travel mm : 5.51

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1690

guide sleeve

travel mm : 13.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 10.00

Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure

hPa : 1200

Del. quantity

cm<sup>3</sup>/1000 strokes : 119.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 115.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1245

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1390

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1500

##### LOW IDLE

control lever

position degree : 74.0

tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300

rack travel mm : 3.90

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. :  $>$  4.50

##### TORQUE CONTROL

Rated speed rpm : 1200

rack travel mm : 13.30

Tolerance mm : +- 0.05  
Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm : +- 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
Pressure hPa : 450  
rack travel mm : 2.20  
Tolerance mm : +- 0.10

Pressure hPa : 250  
rack travel mm : 0.50  
Tolerance mm : +- 0.10

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 200  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 220

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 120.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 66.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0

---

##### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1245  
Tolerance 1/min : +- 5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 150.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 8.0

---

##### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm3/1000 strokes : 12.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 2.0  
Check tolerance  
cm3/1000S. : 4.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.07.96  
Test oil : ISO 4113  
Combination No. : 0 403 244 051  
Injection pump  
Pump designation : PES4MW100/720RS1525  
EP type number : 0 413 204 022  
Governor  
Governor design. : RQV300...1200MW132  
: -14  
Governor no. : 0 420 083 331  
Cust. part No. : 0260747402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 20.00  
Tolerance mm : ± 1.00  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200  
Rack travel in mm : 13.30  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 3.90

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 12.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance

cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 0.91

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1255

guide sleeve

travel mm : 7.93

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 970

guide sleeve

travel mm : 5.51

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1690

guide sleeve

travel mm : 13.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 10.00

Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure  
hPa : 1200

Del. quantity

cm<sup>3</sup>/1000 strokes : 119.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 115.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1245

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1390

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1500

##### LOW IDLE

control lever

position degree : 74.0

tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300

rack travel mm : 3.90

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. :  $>$  4.50

##### TORQUE CONTROL

Rated speed rpm : 1200

rack travel mm : 13.30

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 450  
rack travel mm : 2.20  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 250  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  220

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 66.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

##### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.07.96  
Test oil : ISO 4113  
Combination No. : 0 403 244 055  
Injection pump  
Pump designation : PES4MW100/32ORS1521  
EP type number : 0 413 204 020  
Governor  
Governor design. : RQV400...1200MW147  
: -1  
Governor no. : 0 420 083 336  
Cust. part No. : 51.11103-7532

Customer-spec. information  
Customer : MAN  
Motor : D0824 LFL04  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008  
Outside diameter : 8.0

E14

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.90  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.56  
Tolerance mm : ± 0.20

Rated speed rpm : 1263  
guide sleeve  
travel mm : 9.98  
Tolerance mm : ± 0.15

Rated speed rpm : 868  
guide sleeve  
travel mm : 5.72  
Tolerance mm : ± 0.25

Rated speed rpm : 560  
guide sleeve  
travel mm : 3.27  
Tolerance mm : ± 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1350

Rack travel in mm : 10.00  
Tolerance mm : ± 2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.20  
Rated speed rpm : 1253  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1335

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 400  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

Rated speed rpm : 300

CRT mm min. : > 7.00

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1200  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 400  
rack travel mm : 1.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 130  
rack travel mm : 0.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

##### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 800  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 139.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1253  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.07.96

Test oil : ISO 4113

Combination No. : 0 403 444 151

## Injection pump

Pump designation : PES4MW100/720RS1235

EP type number : 0 413 404 121

## Governor

Governer design. : RQV300...1300MW139

Governer no. : 0 420 083 304

Cust. part No. : 0250742602

## Customer-spec. information

Customer : MB-NFZ

Motor : OM364A

Power KW : 79.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

## Test nozzle holde assembly

: 1 688 901 101

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.70

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.00

Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.15

Tolerance mm : ± 0.05

## Del. quantity

cm3/1000 strokes : 90.0

## Tolerance

cm3/1000 strokes : ± 1.0

## Check tolerance

cm3/1000S. : ± 3.0

## Speed

## Tolerance

cm3/1000 strokes : 3.5



Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 8.15  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 12.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.27  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1354  
guide sleeve  
travel mm : 10.31  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 894  
guide sleeve  
travel mm : 6.18  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 390  
guide sleeve  
travel mm : 2.39  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 440  
guide sleeve  
travel mm : 3.01  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.56  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1600  
guide sleeve  
travel mm : 13.50

Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1430

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm3/1000 strokes : 90.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 12.15  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1455  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 8.15  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. : > 9.50

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 230  
rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 150  
rack travel mm : 0.40  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check  
speed 1/min : > 80

E20

Check  
speed 1/min : < 230

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 12.15  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.06.96  
Test oil : ISO 4113  
Combination No. : 0 403 476 132  
Injection pump  
Pump designation : PES6MW100/320RS1132  
: -1  
EP type number : 0 413 406 230  
Governor  
Governor design. : RSV325...1200MWOA359  
: -1  
Governor no. : 0 420 085 241  
Cust. part No. :

Customer-spec. information  
Customer : PENTA  
Motor : TD 630ME  
Power KW : 119.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 457 413 010  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 12.65  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 325

Rack travel in mm : 6.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

governor spring  
pre-tension  
click setting x : 3.20

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

##### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 11.60  
Rated speed rpm : 1230  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1285  
Tolerance 1/min : +- 10

rack travel mm : 1.00  
Tolerance mm : +- 0.70  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1295

---

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 5.50

##### Testing:

Rated speed rpm : 325  
rack travel mm : 6.00  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 490  
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 700  
Pressure hPa : 1000  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 700  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700

Pressure hPa : 610  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 270  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

E24

rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.07.96

Test oil : ISO 4113

Combination No. : 9 400 085 395

## Injection pump

Pump designation : PES6A95D410RS2886

EP type number : 9 400 084 039

## Governor

Governer design. : RQV300...1300AB1312L

Governer no. : 9 420 080 391

Cust. part No. : 0260749702

## Customer-spec. information

Customer : MBB

Motor : OM 366LA/EURO I

Power KW : 170.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

## Test nozzle holde assembly

: 0 681 343 009

## Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.25

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 109.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

## Speed

## Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

## Check tolerance

cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 7.50

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 16.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 1.05

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500

guide sleeve

travel mm : 8.55

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

guide sleeve

travel mm : 2.55

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 750

guide sleeve

travel mm : 4.20

Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : 1200

Del. quantity

cm<sup>3</sup>/1000 strokes : 109.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 60.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 110.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.20

Rated speed rpm : 1350

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1515

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1650

##### LOW IDLE

control lever

position degree : 69.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 20.0

tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300

rack travel mm : 7.50

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  8.80



Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 12.25  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 700  
rack travel mm : 12.75  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 950  
rack travel mm : 12.75  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 1240  
rack travel mm : 12.25  
Tolerance mm :  $\pm 0.05$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.75  
Tolerance mm :  $\pm 0.05$

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 660  
rack travel mm : 2.40  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 410  
rack travel mm : 1.35  
Tolerance mm :  $\pm 0.05$

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.0$

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.0$

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 3.0$

---

#### BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1350  
Tolerance 1/min :  $\pm 5$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.00  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 7.5$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 10.0$

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.08.96  
Test oil : ISO 4113  
Combination No. : 0 402 736 900  
Injection pump  
Pump designation : PES6P120A120RS7351  
EP type number : 0 412 726 922

Governor  
Governor design. : RQV350...1100PA1173  
: -3K  
Governor no. : 0 421 815 505

Cust. part No. : 3931335

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-A  
Power KW : 244.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 6.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.75  
Tolerance mm : ± 0.05

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 250.5
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 375
<hr/>	
Rack travel in mm	: 6.90
Tolerance mm	: +- 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 24.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 5.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 2.11
Tolerance mm	: +- 0.20
<hr/>	
Rated speed rpm	: 1273
guide sleeve	
travel mm	: 8.91
Tolerance mm	: +- 0.15
<hr/>	
Rated speed rpm	: 781
guide sleeve	
travel mm	: 5.08
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 420
guide sleeve	
travel mm	: 3.10
Tolerance mm	: +- 0.25

Rated speed rpm	: 1640
guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 250.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 115.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 14.20
Rated speed rpm	: 1250
Tolerance 1/min	: +- 15
<hr/>	
rack travel mm	: 7.50
Rated speed rpm	: 1355
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1500

LOW IDLE

control lever	
position degree	: 71.0
tolerance degree	: +- 4.0

Testing:

Rated speed rpm	: 375
rack travel mm	: 6.90
Tolerance mm	: +- 0.20

Rated speed rpm : 250  
CRT mm min. : > 7.50  
Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 15.75  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 650  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.20  
  
Rated speed rpm : 1200  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.10  
  
Rated speed rpm : 750  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 765  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 330  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 290

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 191.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 375  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.08.96  
Test oil : ISO 4113  
  
Combination No. : 0 403 466 149  
  
Injection pump  
Pump designation : PES6MW100/120RS1238  
EP type number : 0 413 406 237  
  
Governor  
Governor design. : RSV500...1100MW2A365  
Governor no. : 0 420 085 248

Cust. part No. : 3926876

Customer-spec. information  
Customer : CDC  
Motor : 6 CT  
Power KW : 127.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

F05

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference  
and maximum rack  
travel : 15.00  
Difference ° CS : 2.00

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.15  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.10  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

rack travel mm : 5.50  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  5

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1350

rack travel mm : 5.50  
Rated speed rpm : 1230

##### LOW IDLE

control lever  
position degree : 89.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.00

##### Testing:

Rated speed rpm : 500  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100



CRT mm min. : > 19.00

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 550  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

F07

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 9.10  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.07.96  
Test oil : ISO 4113

Combination No. : 0 403 466 176

Injection pump  
Pump designation : PES6MW100/120RS1238  
EP type number : 0 413 406 237

Governor  
Governor design. : RSV500...1100MW2A402  
Governor no. : 0 420 085 292

Cust. part No. : 3931934

Customer-spec. information  
Customer : CDC  
Motor : 6 CT  
Power KW : 127.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

F08

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende  
and maximum rack  
travel : 15.00  
Difference ° CS : 2.00

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.15  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.10  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

rack travel mm : 5.60  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  5

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1350

rack travel mm : 5.60  
Rated speed rpm : 1230

##### LOW IDLE

control lever  
position degree : 89.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.00

##### Testing:

Rated speed rpm : 500  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### BREAKAWAY

Rack travel in mm : 9.10  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.08.96  
Test oil : ISO 4113

Combination No. : 0 401 840 749

Injection pump  
Pump designation : PE12P110A320LS3837  
: -1  
EP type number : 0 411 810 710

Governor  
Governor design. : RQV350...1150PA378  
: -1  
Governor no. : 0 421 813 349

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 424  
Power kW : 309.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.30

Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.45  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 7.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1200

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

F12

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 19.0  
tolerance degree :  $\pm$  3.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 7.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 430

##### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 11.45

Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.08.96  
Test oil : ISO 4113

Combination No. : 0 402 046 868

Injection pump  
Pump designation : PES6P110A320RS3349  
EP type number : 0 412 016 753

Governor  
Governor design. : RQV350...1400PA1267K  
Governor no. : 0 421 815 503

Cust. part No. : 16700-D8810

Customer-spec. information  
Customer : NMI  
Motor : M 3.6 TI L  
Power KW : 117.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.50  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 9.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.46  
Tolerance mm : ± 0.20

Rated speed rpm : 1421  
guide sleeve  
travel mm : 10.03  
Tolerance mm : ± 0.15

Rated speed rpm : 996  
guide sleeve  
travel mm : 6.78  
Tolerance mm : ± 0.25

Rated speed rpm : 610  
guide sleeve  
travel mm : 3.96  
Tolerance mm : ± 0.25

Rated speed rpm : 1730  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1545

Rack travel in mm : 11.50  
Tolerance mm : ± 2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 64.0  
tolerance degree : ± 4.0

control lever  
position degree : 122.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.50  
Rated speed rpm : 1410  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1540  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1640

##### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 27.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  10.50

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 780  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1000  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $<$  200  
Rated speed rpm :  $>$  270

Check  
speed 1/min :  $<$  180  
Check  
speed 1/min :  $>$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 780  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### BREAKAWAY

Rack travel in mm : 11.50  
Rated speed rpm : 1410  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.08.96  
Test oil : ISO 4113

Combination No. : 0 402 076 748

Injection pump  
Pump designation : PES6P110A720RS3305  
: -1  
EP type number : 0 412 016 742

Governor  
Governor design. : RSV300...1100P1A555  
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 926 TI  
Power KW : 210.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 207.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0

---

Tolerance  
cm3/1000 strokes : +- 1.0

---

Check tolerance  
cm3/1000S. : +- 3.5

---

Spreed  
Tolerance  
cm3/1000 strokes : 4.0

---

Check tolerance  
cm3/1000S. : 7.5

---

Rated speed rpm : 400

Rack travel in mm : 4.40  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 36.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 5.5  
Spreed  
Tolerance  
cm3/1000 strokes : 4.5  
Check tolerance  
cm3/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1100  
Del. quantity  
cm3/1000 strokes : 165.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.5  
Spreed  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

---

##### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 10.25  
Rated speed rpm : 1040  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1095  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1260

rack travel mm : 4.00  
Rated speed rpm : 1100

---

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 3.90

##### Testing:

Rated speed rpm : 400  
rack travel mm : 4.40  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 450  
Tolerance 1/min : +- 30

---

##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.25  
Tolerance mm : +- 0.05

Rated speed rpm : 600

rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 550  
Pressure hPa : 1100  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 550  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550

Pressure hPa : 650  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 550  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : 10.25  
Rated speed rpm : 1040  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.08.96  
Test oil : ISO 4113

Combination No. : 0 402 076 797

Injection pump  
Pump designation : PES6P120A720RS3371  
EP type number : 0 412 026 791

Governor  
Governor design. : RSV450...1000P5A637  
Governor no. : 0 421 833 548

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8365.26.541  
Power KW : 129.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 240  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 5.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 8.00  
Rated speed rpm : 1070  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1125

---

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 3.70

##### Testing:

Rated speed rpm : 450  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 560  
Tolerance 1/min :  $\pm$  50

---

##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500



rack travel mm : 9.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 330  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### BREAKAWAY

Rack travel in mm : 8.00  
Rated speed rpm : 1070  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 450  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.08.96

Test oil : ISO 4113

Combination No. : 0 402 076 807

## Injection pump

Pump designation : PES6P120A72ORS3378

EP type number : 0 412 026 799

## Governor

Governer design. : RSV450...1050P5A647

Governer no. : 0 421 833 564

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FIAT

Motor : 8365.26.532

Power KW : 117.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

## Overflow quantity

min. l/h : 260

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 8.45

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 112.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000S. : ± 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.60  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.75

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 112.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 98.0

##### RATED SPEED

rack travel mm : 7.40  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1130

---

##### LOW IDLE

control lever  
position degree : 76.0

Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.10

##### Testing:

Rated speed rpm : 450  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min : ± 50

---

##### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 8.45  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 8.50  
Tolerance mm : ± 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.5

---

#### BREAKAWAY

Rack travel in mm : 7.40  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 450  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.08.96  
Test oil : ISO 4113

Combination No. : 0 402 640 827

Injection pump  
Pump designation : PE12P120A520LS7826  
EP type number : 0 412 620 817

Governor  
Governor design. : RQV350...1000PA870  
: -12  
Governor no. : 0 421 813 933

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 550.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 120  
Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

F27

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1000

---

Rack travel in mm : 13.05  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 243.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1100

Rack travel in mm : 12.00  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 243.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

F28

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1140  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1200

---

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  7.30

Rated speed rpm : 425

---

##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Pressure hPa : 400  
Rated speed rpm : 500  
rack travel mm : 1.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 3.00  
Tolerance mm :  $\pm$  0.10

---

START CUT-OUT

Rated speed rpm : > 200  
Rated speed rpm : < 290

Check  
speed 1/min : > 180  
Check  
speed 1/min : < 310

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

G01

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.08.96  
Test oil : ISO 4113  
Combination No. : 0 402 640 828  
Injection pump  
Pump designation : PE12P120A520LS7826  
EP type number : 0 412 620 817

Governor  
Governor design. : RQV350...1050PA870  
: -13  
Governor no. : 0 421 813 934

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 620.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

G02

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1050



Rack travel in mm : 14.05  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1150

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1185  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. : > 7.30

Rated speed rpm : 475

##### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 14.05

Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 1.45  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 900  
rack travel mm : 4.85  
Tolerance mm :  $\pm$  0.15

---

START CUT-OUT

Rated speed rpm : > 200  
Rated speed rpm : < 310

Check  
speed 1/min : > 180  
Check  
speed 1/min : < 330

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed

G04

Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.08.96  
Test oil : ISO 4113

Combination No. : 0 402 640 829

Injection pump  
Pump designation : PE12P120A520LS7826  
EP type number : 0 412 620 817

Governor  
Governor design. : RQV350...900PA870  
: -14  
Governor no. : 0 421 813 935

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 500.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

G05

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.95

Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 5.60

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.55  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1120  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 655  
guide sleeve  
travel mm : 5.05  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 960  
guide sleeve  
travel mm : 8.95

G06

Tolerance mm :  $\pm$  0.25

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 950

Rack travel in mm : 16.50

Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

##### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.90  
Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1025  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
CRT mm min. :  $>$  7.30  
Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : -

##### MEASUREMENT

Pressure hPa : 400  
Rated speed rpm : 500  
rack travel mm : 1.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 2.90  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm :  $>$  200  
Rated speed rpm :  $<$  310

Check  
speed 1/min :  $>$  180  
Check  
speed 1/min :  $<$  330

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 232.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

#### BREAKAWAY

Rack travel in mm : 11.90  
Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.08.96  
Test oil : ISO 4113

Combination No. : 0 402 648 785

Injection pump  
Pump designation : PE8P120A320LS7844  
EP type number : 0 412 628 860

Governor  
Governor design. : RQV350...1050PA1318  
Governor no. : 0 421 814 185

Cust. part No. : 0270746302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.48  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1106  
guide sleeve  
travel mm : 8.02  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 900  
guide sleeve  
travel mm : 5.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 580  
guide sleeve  
travel mm : 3.62  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1204  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1300  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1174

Rack travel in mm : 11.00  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 14.30  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1155  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300



---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  8.36

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Pressure hPa : 180  
rack travel mm : 0.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 700  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 14.30  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.08.96  
Test oil : ISO 4113

Combination No. : 0 402 648 787

Injection pump  
Pump designation : PE8P120A32OLS7899  
EP type number : 0 412 628 916

Governor  
Governor design. : RQV350...1050PA1308  
Governor no. : 0 421 814 181

Cust. part No. : 0250742502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 405.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 90  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.00

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.05  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1111  
guide sleeve  
travel mm : 8.58  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1640  
guide sleeve  
travel mm : 25.13  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 830  
guide sleeve  
travel mm : 6.20

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1183  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1136

Rack travel in mm : 13.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 14.00  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  7.50

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 1.40  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1000  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $>$  210  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  190

---

Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.08.96  
Test oil : ISO 4113

Combination No. : 0 402 676 831

Injection pump  
Pump designation : PE6P120A320LS7895  
EP type number : 0 412 626 955

Governor  
Governor design. : RSV600...1050POA642  
Governor no. : 0 421 833 556

Cust. part No. : 0270748402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 441 LA  
Power KW : 285.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-45-120-165-240  
: -285  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 14.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 251.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 600

Rack travel in mm : 4.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 251.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 93.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.20  
Rated speed rpm : 1115  
Tolerance 1/min : ± 5

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 600  
rack travel mm : 4.20  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

##### TORQUE CONTROL

Rated speed rpm : 1075  
rack travel mm : 14.20  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 15.25  
Tolerance mm : ± 0.10

Rated speed rpm : 1000  
rack travel mm : 14.85  
Tolerance mm : ± 0.05



---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 291.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### BREAKAWAY

Rack travel in mm : 13.20  
Rated speed rpm : 1115  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.75  
Tolerance mm :  $\pm$  0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.08.96  
Test oil : ISO 4113

Combination No. : 0 402 736 888

Injection pump  
Pump designation : PES6P120A120RS7390  
EP type number : 0 412 726 945

Governor  
Governor design. : RQV350...1100PA1237K  
Governor no. : 0 421 815 475

Cust. part No. : 3283278

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 162.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.70  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.30

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.80

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.27  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 420  
guide sleeve  
travel mm : 4.28

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1380  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1200

Rack travel in mm : 12.30  
Tolerance mm :  $\pm$  2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance

cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 123.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 21.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
CRT mm min. :  $>$  7.70

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100

rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 170  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 330  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  280

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.08.96  
Test oil : ISO 4113

Combination No. : 0 402 736 889

Injection pump  
Pump designation : PES6P120A120RS7390  
EP type number : 0 412 726 945

Governor  
Governor design. : RQV350...1100PA1244K  
Governor no. : 0 421 815 477

Cust. part No. : 3283279

---

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 179.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 90  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

°NW after s.o.d. : 7.70  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 13.70

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 173.0
<hr/>	
Tolerance cm3/1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm3/1000S.	: ± 4.0
<hr/>	
Spreed Tolerance cm3/1000 strokes	: 5.0
<hr/>	
Check tolerance cm3/1000S.	: 9.0
<hr/>	
Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 4.60
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 18.0
Tolerance cm3/1000 strokes	: ± 3.0
Check tolerance cm3/1000S.	: ± 5.0
Spreed Tolerance cm3/1000 strokes	: 7.0
Check tolerance cm3/1000S.	: 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve travel mm	: 1.93
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1159
guide sleeve travel mm	: 10.27
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 710
guide sleeve travel mm	: 5.79
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 420
guide sleeve travel mm	: 4.28

Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1380
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1195
<hr/>	
Rack travel in mm	: 12.00
Tolerance mm	: ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1500
Del. quantity cm3/1000 strokes	: 173.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spreed Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 68.0
tolerance degree	: ± 4.0

control lever position degree	: 122.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.70
Rated speed rpm	: 1145
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1240
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 20.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  7.50

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 700  
Pressure hPa : 1500  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 700  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 700

Pressure hPa : 140  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 300  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  290

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.70  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY



Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.08.96  
Test oil : ISO 4113

Combination No. : 0 402 736 892

Injection pump  
Pump designation : PES6P120A120RS7400  
EP type number : 0 412 726 950

Governor  
Governor design. : RQV350...1100PA1244  
: -1K  
Governor no. : 0 421 815 488

Cust. part No. : 3282610

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 221.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

°NW after s.o.d. : 7.70  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.30

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.40

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
Tolerance

cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.28  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.80  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 430  
guide sleeve  
travel mm : 4.33

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1380  
guide sleeve

travel mm : 13.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1200

Rack travel in mm : 14.30

Tolerance mm :  $\pm$  2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 14.30  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1255  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 20.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  8.30

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 14.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 15.25  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 600  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100

H02

rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 880  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 240  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  290

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 14.30  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.08.96  
Test oil : ISO 4113  
Combination No. : 0 403 244 045A  
Injection pump  
Pump designation : PES4MW100/720RS1524  
EP type number : 0 413 204 021  
Governor  
Governor design. : RQV300...1300MW132  
: -12  
Governor no. : 0 420 083 329  
Cust. part No. : 0240740902

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 77.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

H04

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 20.00  
Tolerance mm : ± 1.00  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1270  
Rack travel in mm : 13.00  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm3/1000S. : 7.0

Rated speed rpm : 300

Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 12.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 2.0  
Check tolerance  
cm3/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.91  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1353  
guide sleeve  
travel mm : 7.14  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1130  
guide sleeve  
travel mm : 5.40  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 3.72  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1679  
guide sleeve  
travel mm : 12.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1780  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1646

Rack travel in mm : 9.90  
Tolerance mm :  $\pm$  1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm3/1000 strokes : 89.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 4.5  
Check tolerance  
cm3/1000S. : 7.0

CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1435  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. : > 4.61

---

#### TORQUE CONTROL

Rated speed rpm : 1270  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : 230  
rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 150  
rack travel mm : 0.30  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 200  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 220

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  10

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0



---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.08.96  
Test oil : ISO 4113  
Combination No. : 0 403 474 006  
Injection pump  
Pump designation : PES4MW100/720RS1127  
EP type number : 0 413 404 103  
Governor  
Governor design. : RSV350...1300MWOA322  
: -1  
Governor no. : 0 420 085 093  
Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 364 A  
Power KW : 85.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

H08

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 11.15  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 7.60

Tolerance mm : +- 0.15

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : +- 0.35

governor spring

pre-tension

click setting x : 6.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 10.10

Rated speed rpm : 1345

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1415

Tolerance 1/min : +- 15

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1550

rack travel mm : 4.00

Rated speed rpm : 1445

##### LOW IDLE

control lever  
position degree : 86.0  
tolerance degree : +- 4.0

##### Testing:

Rated speed rpm : 350

rack travel mm : 7.60

Tolerance mm : +- 0.15

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1300

rack travel mm : 11.15

Tolerance mm : +- 0.05

Rated speed rpm : 750

rack travel mm : 12.00

Tolerance mm : +- 0.10

Rated speed rpm : 585

rack travel mm : 12.20

Tolerance mm : +- 0.10

Rated speed rpm : 1000

rack travel mm : 11.20

Tolerance mm : +- 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 585  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 10.10  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.08.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 385EE  
Injection pump  
Pump designation : PES6A95D410RS2886  
EP type number : 9 400 084 039  
Governor  
Governor design. : RQV300...1300AB1306L  
Governor no. : 9 420 080 384

Cust. part No. : 0260745502

Customer-spec. information  
Customer : MBB  
Motor : OM 366 A  
Power KW : 1.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 8.00

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 10.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 1.05

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500

guide sleeve

travel mm : 8.55

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

guide sleeve

travel mm : 2.55

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 750

guide sleeve

travel mm : 4.20

Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 60.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 109.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.80

Rated speed rpm : 1355

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1485

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1600

##### LOW IDLE

control lever

position degree : 70.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 22.0

tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300

rack travel mm : 8.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 8.60

Rated speed rpm : 200  
CRT mm max. : > 8.60  
Rated speed rpm : 375

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 250  
rack travel mm : 0.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 450  
rack travel mm : 1.75  
Tolerance mm :  $\pm$  0.05

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 42.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1355  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.05.96  
Test oil : ISO 4113  
Combination No. : 9 400 087 500  
Injection pump  
Pump designation : PES6P120A720LS7257  
: -10  
EP type number : 9 400 087 086  
Governor  
Governor design. : RQV300...950PA1242  
Governor no. : 9 420 080 387  
Cust. part No. : 0260746602

## Customer-spec. information

Customer : MBB  
Motor : OM 447 LA  
Power KW : 264.8

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 21.00  
Firing order : 6- 2- 4- 1- 5-  
: 3  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 600  
Rack travel in mm : 14.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 275.5  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050  
guide sleeve  
travel mm : 7.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
guide sleeve  
travel mm : 5.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.55  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1165  
guide sleeve  
travel mm : 9.45  
Tolerance mm :  $\pm$  0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 52.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 117.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.60  
Rated speed rpm : 1000  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1230

##### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  9.20

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 840  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 760  
rack travel mm : 2.25  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 500  
rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100

H17

Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80

Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300

Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : 1300

Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

#### BREAKAWAY

Rack travel in mm : 12.60

Rated speed rpm : 1000  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.08.96  
Test oil : ISO 4113

Combination No. : 0 402 746 612

Injection pump  
Pump designation : PES6P120A32ORS7372  
EP type number : 0 412 726 940

Governor  
Governor design. : RQV250...1300PA1282K  
Governor no. : 0 421 815 515

Cust. part No. : 3866784

## Customer-spec. information

Customer : CDC  
Motor : 6BTA  
Power KW : 187.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.00  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.39  
Tolerance mm : ± 0.20

Rated speed rpm : 1355  
guide sleeve  
travel mm : 8.32  
Tolerance mm : ± 0.15

Rated speed rpm : 885  
guide sleeve  
travel mm : 5.46  
Tolerance mm : ± 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.18  
Tolerance mm : ± 0.25

Rated speed rpm : 1860  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.60  
Rated speed rpm : 1375  
Tolerance 1/min : ± 5

rack travel mm : 7.50  
Rated speed rpm : 1470  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1650

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm : ± 0.20

Rated speed rpm : 250  
CRT mm min. : > 8.00  
Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1300  
Pressure hPa : 1200

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1000  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1300  
Pressure hPa : 585  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 255  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 250

Check  
speed 1/min : > 80

H21

Check  
speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1375  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.08.96  
Test oil : ISO 4113

Combination No. : 0 403 466 174

Injection pump  
Pump designation : PES6MW100/120RS1238  
EP type number : 0 413 406 237

Governor  
Governor design. : RSV500...1100MWOA398  
Governor no. : 0 420 085 287

Cust. part No. : 3930122

Customer-spec. information  
Customer : CDC  
Motor : 6 CT  
Power KW : 112.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H23

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende  
and maximum rack  
travel : 15.00  
Difference ° CS : 2.00

## BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 9.85  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 500

---

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

##### CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 8.80  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

rack travel mm : 6.00  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  5

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

rack travel mm : 6.00  
Rated speed rpm : 1230

---

##### LOW IDLE

control lever  
position degree : 90.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.00

##### Testing:

Rated speed rpm : 500  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 9.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### BREAKAWAY

Rack travel in mm : 8.80  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.08.96  
Test oil : ISO 4113

Combination No. : 9 400 030 720

Injection pump  
Pump designation : PES6A95D320/3RS2895  
EP type number : 9 410 037 238

Governor  
Governor design. : RSV475...1250A0C833R  
Governor no. : 9 420 034 703

Cust. part No. : 3928595

Customer-spec. information  
Customer : CDC  
Motor : 6BTA  
Power KW : 130.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 9.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.65  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.70  
Rated speed rpm : 1320  
Tolerance 1/min : ± 5

rack travel mm : 5.50  
Rated speed rpm : 1390  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1475

rack travel mm : 5.50  
Rated speed rpm : 1390

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 5.15

##### Testing:

Rated speed rpm : 475  
rack travel mm : 5.65  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 480  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 350  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1320  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50

H28

Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.08.96  
Test oil : ISO 4113

Combination No. : 9 400 030 721

Injection pump  
Pump designation : PES6A95D320/3RS2895  
EP type number : 9 410 037 238

Governor  
Governor design. : RSV475...1250A0C839R  
Governor no. :

Cust. part No. : 3929601

Customer-spec. information  
Customer : CDC  
Motor : 6BTA  
Power KW : 130.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

\*NW after s.o.d. : 9.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.70  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.5

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 550

Rack travel in mm : 5.30  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 17.5

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.5

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 900

Del. quantity  
cm3/1000 strokes : 107.5

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Spreed

Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1325  
Tolerance 1/min : +- 5

rack travel mm : 5.80  
Rated speed rpm : 1385  
Tolerance 1/min : +- 5

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1450

rack travel mm : 5.80  
Rated speed rpm : 1385

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 550  
rack travel mm : 4.80

##### Testing:

Rated speed rpm : 550  
rack travel mm : 5.30  
Tolerance mm : +- 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.70  
Tolerance mm : +- 0.05



---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 500

Pressure hPa : 480  
rack travel mm : 12.00  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 350  
rack travel mm : 11.00  
Tolerance mm :  $\pm 0.20$

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.0$

---

BREAKAWAY

Rack travel in mm : 11.80  
Rated speed rpm : 1325  
Tolerance 1/min :  $\pm 5$

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 15.0$

---

LOW IDLE

Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.5$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.07.96  
Test oil : ISO 4113  
Combination No. : 9 400 030 733  
Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214

Governor  
Governor design. :  
Governor no. : 9 420 034 712

Cust. part No. : 3930149

Customer-spec. information  
Customer : CDC  
Motor : 4BT3.9  
Power KW : 78.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.5

---

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm3/1000S. :  $\pm$  3.0

---

Speed  
Tolerance  
cm3/1000 strokes : 4.0

---

Check tolerance  
cm3/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 20.5

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm3/1000 strokes : 105.5

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

J05

Speed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 6.5

---

CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 11.50  
Rated speed rpm : 1270  
Tolerance 1/min :  $\pm$  5

rack travel mm : 6.70  
Rated speed rpm : 1340  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

rack travel mm : 6.70  
Rated speed rpm : 1340

---

LOW IDLE

control lever  
position degree : 85.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 5.50

Testing:

Rated speed rpm : 425  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 12.55

Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 660  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 460  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

Rack travel in mm : 11.50  
Rated speed rpm : 1270  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 425  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.08.96  
Test oil : ISO 4113  
Combination No. : 0 401 848 829  
Injection pump  
Pump designation : PE8P110A320LS3865  
EP type number : 0 411 818 728  
Governor  
Governor design. : RQ250/1150PA1250  
Governor no. : 0 421 801 796

Cust. part No. :

Customer-spec. information  
Customer : DHI  
Motor : V2-8NA

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.05  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 11.80  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 250

Rack travel in mm : 8.10  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.59  
Tolerance mm : ± 0.20

Rated speed rpm : 1209  
guide sleeve  
travel mm : 7.49  
Tolerance mm : ± 0.15

Rated speed rpm : 1150  
guide sleeve  
travel mm : 7.00  
Tolerance mm : ± 0.10

Rated speed rpm : 411  
guide sleeve  
travel mm : 5.37  
Tolerance mm : ± 0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 7.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1340  
guide sleeve  
travel mm : 11.50

Tolerance mm : ± 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 700

Rack travel in mm : 15.50  
Tolerance mm : ± 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

##### CONTROL LEVER

control lever  
position degree : 36.0  
tolerance degree : ± 4.0

control lever  
position degree : 98.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 1203  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1260  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 150

CRT mm min. :  $>$  9.90

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  170

Check  
speed 1/min :  $>$  80

Check  
speed 1/min :  $<$  190

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### BREAKAWAY

Rack travel in mm : 10.80  
Rated speed rpm : 1203  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

#### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.08.96

Test oil : ISO 4113

Combination No. : 0 402 066 708

## Injection pump

Pump designation : PES6P120A120RS3358

EP type number : 0 412 026 784

## Governor

Governer design. : RSV475...1150P2A619

Governer no. : 0 421 833 522

Cust. part No. : 3283019

## Customer-spec. information

Customer : CDC

Motor : 6BTA-590 ELITE

Power KW : 136.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

## Overflow quantity

min. l/h : 100

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 103

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.50

## Start of delivery blocking

\*NW after s.o.d. : 6.75

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150



Rack travel in mm : 12.90  
Tolerance mm : +- 0.05

Del. quantity  
cm3/1000 strokes : 179.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Speed  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 7.20  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 60.0

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.5

Speed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm3/1000 strokes : 179.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Speed  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 11.90  
Rated speed rpm : 1195  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1330  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 6.70

##### Testing:

Rated speed rpm : 475  
rack travel mm : 7.20  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 660  
Tolerance 1/min : +- 30

##### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.90  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 08.08.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 066 711  
  
Injection pump  
Pump designation : PES6P120A120RS3358  
EP type number : 0 412 026 784  
  
Governor  
Governor design. : RSV475...1150P2A619  
Governor no. : 0 421 833 513

Cust. part No. : 3283521

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA ELITE  
Power KW : 139.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

\*NW after s.o.d. : 6.75  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 7.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.90  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1280  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 84.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 6.70

##### Testing:

Rated speed rpm : 475  
rack travel mm : 7.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 660  
Tolerance 1/min :  $\pm$  30

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -

J15

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.90  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.08.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 804  
Injection pump  
Pump designation : PES6P120A72ORS3340  
EP type number : 0 412 026 773  
Governor  
Governor design. : RSV650...1100P8A566  
: -2  
Governor no. : 0 421 833 559  
Cust. part No. :

Customer-spec. information  
Customer : NH  
Power KW : 162.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 086  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

Check  
tolerance °NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 10.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

##### CONTROL LEVER

control lever  
position degree : 95.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 4.00  
Rated speed rpm : 1105

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1072  
rack travel mm : 9.80

Rated speed rpm : 1100  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1350

Rated speed rpm : 1073  
rack travel mm : 9.80

Rated speed rpm : 1101  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1074  
rack travel mm : 9.80

Rated speed rpm : 1102  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1075  
rack travel mm : 9.80

Rated speed rpm : 1103  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1076  
rack travel mm : 9.80

Rated speed rpm : 1104  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1077  
rack travel mm : 9.80

Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

---

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 650  
rack travel mm : 4.20

Testing:

Rated speed rpm : 650  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 760

---

#### TORQUE CONTROL

Rated speed rpm : 1025  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1600  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 840  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0



---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 02.11.93  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 600  
  
Injection pump  
Pump designation : PE6P120A72ORS7022  
EP type number : 0 412 626 873  
  
Governor  
Governor design. : RQV200...1000PA539  
: -14  
Governor no. : 0 421 814 011  
  
Cust. part No. : 1343250

Customer-spec. information  
Customer : SCANIA  
Motor : DS11 76

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Vibration  
damper  
(RoBo diaphragm) : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 2.5  
Tolerance bar : +- 0.1  
  
Test nozzle holde  
assembly : 1 688 901 104  
  
Opening pressure  
bar : 251.5  
Tolerance bar : +- 1.5

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Test Lines : 1 680 750 008  
  
Outside diameter : 6.0  
  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
  
Prestroke mm : 4.45  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50  
  
Start of delivery mark  
  
Tolerance : +- 0.10  
Check  
tolerance °NW : +- 0.75  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700  
  
Rack travel in mm : 10.95  
Tolerance mm : +- 0.05

<hr/>	
Del. quantity	
cm3/1000 strokes :	169.0
<hr/>	
Tolerance	
cm3/1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm3/1000S. :	+ 4.0
<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes :	8.0
<hr/>	
Check tolerance	
cm3/1000S. :	12.0
<hr/>	
Rated speed rpm :	250
<hr/>	
Rack travel in mm :	4.70
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	17.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 5.0
Spreed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	1050
<hr/>	
Rack travel in mm :	16.50
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	700
Aneroid pressure	
hPa :	1500
Del. quantity	
cm3/1000 strokes :	169.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	

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Tolerance	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000S. :	12.0

CONTROL LEVER

control lever	
position degree :	64.0
tolerance degree :	+ 4.0

control lever	
position degree :	116.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	9.90
Rated speed rpm :	1045
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1130
Tolerance 1/min :	+ 15

rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1250

LOW IDLE

control lever	
position degree :	67.0
tolerance degree :	+ 4.0

control lever	
position degree :	23.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	250
rack travel mm :	4.70
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	420
Tolerance 1/min :	+ 30

Rated speed rpm :	150
-------------------	-----

CRT mm min. :	> 6.20
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TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 340  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 390  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 9.90  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.10

Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 640  
  
Injection pump  
Pump designation : PE6P120A32ORS7311  
: -10  
EP type number : 0 412 626 932  
  
Governor  
Governor design. : RQV275...1150PA1110K  
Governor no. : 0 421 815 375

Cust. part No. : 1280143/7

Customer-spec. information  
Customer : DAF  
Motor : RS 222 M  
Power KW : 222.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1130

Rack travel in mm : 13.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0

Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0
Rated speed rpm	: 275
Rack travel in mm	: 4.10
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 16.0
Tolerance	
cm3/1000 strokes	: +- 3.0
Check tolerance	
cm3/1000S.	: +- 6.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.56
Tolerance mm	: +- 0.25
Rated speed rpm	: 1203
guide sleeve	
travel mm	: 10.07
Tolerance mm	: +- 0.25
Rated speed rpm	: 814
guide sleeve	
travel mm	: 6.79
Tolerance mm	: +- 0.25
Rated speed rpm	: 300
guide sleeve	
travel mm	: 2.13
Tolerance mm	: +- 0.25
Rated speed rpm	: 350

guide sleeve	
travel mm	: 2.90
Tolerance mm	: +- 0.25
Rated speed rpm	: 460
guide sleeve	
travel mm	: 3.90
Tolerance mm	: +- 0.25
Rated speed rpm	: 1480
guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1280
Rack travel in mm	: 12.80
Tolerance mm	: +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1130
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 218.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 121.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 12.55
Rated speed rpm	: 1192
Tolerance 1/min	: +- 5
rack travel mm	: 4.00
Rated speed rpm	: 1315
Tolerance 1/min	: +- 15
rack travel mm	: 0.70
Tolerance mm	: +- 0.70

Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.10  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 330  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175

CRT mm min. :  $>$  6.00

---

#### TORQUE CONTROL

Rated speed rpm : 1130  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 850  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 775  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1130  
Pressure hPa : 1500  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1130  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1130

Pressure hPa : 580  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 320  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.55  
Rated speed rpm : 1192  
Tolerance 1/min :  $\pm$  5

---

LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.06.96  
Test oil : ISO 4113  
Combination No. : 0 402 646 972  
Injection pump  
Pump designation : PE6P120A320RS7218  
: -10  
EP type number : 0 412 626 891  
Governor  
Governor design. : RQV275...1000PA939  
: -2  
Governor no. : 0 421 813 986  
Cust. part No. : 1249381/4

Customer-spec. information  
Customer : DAF  
Motor : WS 268 L  
Power KW : 268.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 105  
Tolerance l/h : ± 10.0  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5

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Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 5.35  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 14.50  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 850  
Rack travel in mm : 14.95  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.34  
Tolerance mm : + 0.15

Rated speed rpm : 1058  
guide sleeve  
travel mm : 8.05  
Tolerance mm : + 0.20

Rated speed rpm : 676  
guide sleeve  
travel mm : 4.49  
Tolerance mm : + 0.25

Rated speed rpm : 301  
guide sleeve  
travel mm : 1.78  
Tolerance mm : + 0.25

Rated speed rpm : 351  
guide sleeve  
travel mm : 2.45  
Tolerance mm : + 0.25

Rated speed rpm : 380  
guide sleeve  
travel mm : 2.66  
Tolerance mm : + 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1125  
Rack travel in mm : 14.90  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.95  
Rated speed rpm : 1045  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1175  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 175

CRT mm min. :  $>$  7.50

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 490  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 280  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

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---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.95  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

---

#### LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.08.96  
Test oil : ISO 4113  
Combination No. : 0 402 646 988  
Injection pump  
Pump designation : PE6P120A320RS7230  
 : -10X  
EP type number : 0 412 626 899  
Governor  
Governor design. : RQV250...1000PA990K  
Governor no. : 0 421 815 274

Cust. part No. : 1250705/4

Customer-spec. information  
Customer : DAF  
Motor : WS 295 L  
Power KW : 295.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
 : 4

Phasing : 0-60-120-180-240  
 : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 259.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 5.20  
Tolerance mm : + 0.10  
Del. quantity  
cm3/1000 strokes : 17.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 6.0  
Spread  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.53  
Tolerance mm : + 0.10

Rated speed rpm : 1038  
guide sleeve  
travel mm : 9.74  
Tolerance mm : + 0.10

Rated speed rpm : 686  
guide sleeve  
travel mm : 6.41  
Tolerance mm : + 0.25

Rated speed rpm : 284  
guide sleeve  
travel mm : 2.27  
Tolerance mm : + 0.25

Rated speed rpm : 334  
guide sleeve  
travel mm : 3.17  
Tolerance mm : + 0.25

Rated speed rpm : 390

guide sleeve  
travel mm : 3.79  
Tolerance mm : + 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1130

Rack travel in mm : 13.50  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 259.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.95  
Rated speed rpm : 1032  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1275

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 150

CRT mm min. :  $>$  7.00

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 825  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 980  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980

Pressure hPa : 730  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 300  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 257.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 12.95  
Rated speed rpm : 1032  
Tolerance 1/min :  $\pm$  5

#### LOW IDLE

Rated speed rpm : 250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.03.96

Test oil : ISO 4113

Combination No. : 0 402 736 862AA

## Injection pump

Pump designation : PES6P110A120RS7214

EP type number : 0 412 716 805

## Governor

Governor design. : RQV350...1200PA964

: -30K

Governor no. : 0 421 815 432

Cust. part No. : 3282470

## Customer-spec. information

Customer : CUMMINS

Motor : 6CTA-A

Power KW : 213.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

## Overflow quantity

min. l/h : 120

Tolerance l/h : ± 5.0

## Test nozzle holder assembly

: 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0

Tolerance bar : ± 1.0

Prestroke mm : 4.40

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.50

## Start of delivery blocking

\*NW after s.o.d. : 6.00

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.90



Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 1.76

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1269

guide sleeve

travel mm : 9.75

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 829

guide sleeve

travel mm : 6.79

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 322

guide sleeve

travel mm : 1.98

K07

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 372

guide sleeve

travel mm : 2.75

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 460

guide sleeve

travel mm : 3.76

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1630

guide sleeve

travel mm : 13.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 12.90

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity

cm<sup>3</sup>/1000 strokes : 186.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever

position degree : 60.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 112.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 13.65

Rated speed rpm : 1150

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1360  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. :  $>$  7.65

Rated speed rpm : 423

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.35

Rated speed rpm : 1100  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 700  
Pressure hPa : 1200  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.05

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---

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 700  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 700

Pressure hPa : 900  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 450  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 13.65  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.08.96  
Test oil : ISO 4113

Combination No. : 0 402 736 893

Injection pump  
Pump designation : PES6P120A120RS7400  
EP type number : 0 412 726 950

Governor  
Governor design. : RQV350...1100PA1244  
: -2K  
Governor no. : 0 421 815 489

Cust. part No. : 3282609

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 206.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

\*NW after s.o.d. : 7.70  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.50  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.28  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 500

guide sleeve  
travel mm : 4.70  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1380  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1215

Rack travel in mm : 13.30  
Tolerance mm :  $\pm$  2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 14.50  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1260  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 20.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  8.60

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 15.40  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1500  
rack travel mm : 15.50  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1050  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1050

Pressure hPa : 730  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 240  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  280

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 14.50  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.08.96

Test oil : ISO 4113

Combination No. : 0 402 736 894

## Injection pump

Pump designation : PES6P120A120RS7400

EP type number : 0 412 726 950

## Governor

Governer design. : RQV350...1200PA1261

Governer no. : 0 421 815 495

Cust. part No. : 3282766

## Customer-spec. information

Customer : CUMMINS

Motor : 6CTAA

Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

## Overflow quantity

min. l/h : 125

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.30

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.50

## Start of delivery blocking

°NW after s.o.d. : 7.70

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.65



Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350

guide sleeve  
travel mm : 1.93

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1258

guide sleeve  
travel mm : 10.14

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 766

guide sleeve  
travel mm : 5.91

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450

guide sleeve  
travel mm : 4.49

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1520

guide sleeve  
travel mm : 13.50

Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1340

Rack travel in mm : 12.60

Tolerance mm :  $\pm$  2.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever

position degree : 66.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 120.0

tolerance degree :  $\pm$  4.0

---

##### RATED SPEED

rack travel mm : 13.60

Rated speed rpm : 1245

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1370

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1450

---

## LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 18.0  
tolerance degree :  $\pm$  4.0

### Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

CRT mm min. :  $>$  8.60

Rated speed rpm : 350

---

## TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 14.75  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.65  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1150

Pressure hPa : 570  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 220  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

---

## START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  280

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## BREAKAWAY

Rack travel in mm : 13.60  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.96  
Test oil : ISO 4113  
Combination No. : 0 402 946 027  
Injection pump  
Pump designation : PES6P120A320RS8047  
EP type number : 0 412 926 029  
Governor  
Governor design. : RQV275...1250PA1312K  
Governor no. : 0 421 815 966

Cust. part No. : CCEP 5160 66-244

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 06.02.26L71  
Power KW : 132.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

\*NW after s.o.d. : -0.60  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 19.50  
Difference ° CS : 3.00

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.10  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -7.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.52  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1340  
guide sleeve  
travel mm : 9.96  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 923  
guide sleeve  
travel mm : 6.76  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1650  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1430

Rack travel in mm : 11.10  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1333  
Tolerance 1/min :  $\pm$  15

rack travel mm : -8.10  
Rated speed rpm : 1465  
Tolerance 1/min :  $\pm$  5

rack travel mm : -11.60  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 243.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 325  
rack travel mm : -7.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm max. :  $>$  -5.90

Rated speed rpm : 390

---

#### TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 650  
rack travel mm : -2.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350  
rack travel mm : -3.40  
Tolerance mm :  $\pm$  0.25

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1600  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -4.85  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 250  
rack travel mm : -3.50  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 700  
rack travel mm : -0.60

K20

Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  175  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $>$  155  
Check  
speed 1/min :  $<$  260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1333  
Tolerance 1/min :  $\pm$  15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.96  
Test oil : ISO 4113

Combination No. : 0 402 946 028

Injection pump  
Pump designation : PES6P120A320RS8047  
EP type number : 0 412 926 029

Governor  
Governor design. : RQV275...1175PA1312  
: -1K  
Governor no. : 0 421 815 965

Cust. part No. : CCEP 5161 66-245

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 060226 M71  
Power KW : 158.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 5.25  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 11.00  
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50

Start of delivery mark

\*NW after s.o.d. : -0.70  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 19.50  
Difference °CS : 3.00

## BASIC SETTING



Rated speed rpm : 1175

Rack travel in mm : 13.30  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 0.98  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1270  
guide sleeve  
travel mm : 9.30  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 893  
guide sleeve  
travel mm : 6.60

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 560  
guide sleeve  
travel mm : 4.01  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1650  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1412

Rack travel in mm : 12.20  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 297.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1262  
Tolerance 1/min :  $\pm$  15

rack travel mm : -9.20  
Rated speed rpm : 1431  
Tolerance 1/min :  $\pm$  5

rack travel mm : -12.80  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1550

---

## LOW IDLE

control lever  
position degree : 248.0  
tolerance degree :  $\pm$  4.0

### Testing:

Rated speed rpm : 275  
rack travel mm : -7.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm max. :  $>$  -6.40

Rated speed rpm : 390

---

## TORQUE CONTROL

Rated speed rpm : 1175

Rated speed rpm : 650  
rack travel mm : -1.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350  
rack travel mm : -3.00  
Tolerance mm :  $\pm$  0.25

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1175  
Pressure hPa : 1600

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -5.55  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1175

Pressure hPa : 320  
rack travel mm : -4.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : -2.40  
Tolerance mm :  $\pm$  0.05

---

## START CUT-OUT

Rated speed rpm :  $>$  175  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $>$  155  
Check  
speed 1/min :  $<$  260

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 259.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1262  
Tolerance 1/min :  $\pm$  15

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

## LOW IDLE

Rated speed rpm : 275  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.08.96  
Test oil : ISO 4113  
  
Combination No. : 0 403 476 110  
  
Injection pump  
Pump designation : PES6MW100/720RS1131  
: -1  
EP type number : 0 413 406 165  
  
Governor  
Governor design. : RSV350...1300MWOA329  
: -11  
Governor no. : 0 420 085 181  
  
Cust. part No. : 0220742702

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 170.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 1.50

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1280

Rack travel in mm : 14.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 112.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 7.00

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 12.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spreed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm :  $\pm$  0.35

governor spring

pre-tension

click setting x : 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1280

Aneroid pressure  
hPa : 1000

Del. quantity  
cm3/1000 strokes : 112.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spreed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

##### CONTROL LEVER

control lever

position degree : 95.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 1.00

Tolerance mm :  $\pm$  0.70

Rated speed rpm : 1550

rack travel mm : 4.00

Rated speed rpm : 1420

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1330

rack travel mm : 13.45

Rated speed rpm : 1414

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1331

rack travel mm : 13.45

Rated speed rpm : 1415

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1332

rack travel mm : 13.45

Rated speed rpm : 1416

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1333

rack travel mm : 13.45

Rated speed rpm : 1417

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1338

rack travel mm : 13.45

Rated speed rpm : 1422

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

Rated speed rpm : 1339

rack travel mm : 13.45

Rated speed rpm : 1423

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

---

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

---

#### TORQUE CONTROL

Rated speed rpm : 1280  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350

rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 13.08.96

Test oil : ISO 4113

Combination No. : 0 403 486 105

## Injection pump

Pump designation : PES6MW100/321RS1231

EP type number : 0 413 406 225

## Governor

Governer design. : RSV300...1100MWOA343

: -1

Governer no. : 0 420 085 209

Cust. part No. : 3-7263

## Customer-spec. information

Customer : MAN

Motor : D0826LE 522

Power KW : 154.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

## Test nozzle holder assembly

: 0 681 343 009

## Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.35

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 146.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000S. : ± 4.0



Speed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	7.5
Rated speed rpm :	365
Rack travel in mm :	4.50
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	14.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Speed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	900
Aneroid pressure	
hPa :	1000
Del. quantity	
cm3/1000 strokes :	146.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Speed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	7.5

CONTROL LEVER

control lever	
position degree :	101.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	11.10
Rated speed rpm :	1130
Tolerance 1/min :	+ 5
rack travel mm :	4.00
Rated speed rpm :	1220
Tolerance 1/min :	+ 15
rack travel mm :	1.00
Tolerance mm :	+ 0.70
Rated speed rpm :	1350

LOW IDLE

control lever	
position degree :	78.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	365
rack travel mm :	4.50
Tolerance mm :	+ 0.10
rack travel mm :	2.00
Rated speed rpm :	420
Tolerance 1/min :	+ 30
Rated speed rpm :	100
CRT mm min. :	> 19.00

TORQUE CONTROL

Rated speed rpm :	900
rack travel mm :	12.35
Tolerance mm :	+ 0.05
Rated speed rpm :	1075
rack travel mm :	12.10
Tolerance mm :	+ 0.05
Rated speed rpm :	600
rack travel mm :	12.40
Tolerance mm :	+ 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 150  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1075  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

Rack travel in mm : 11.10  
Rated speed rpm : 1130  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 365  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.08.96  
Test oil : ISO 4113  
Combination No. : 0 403 486 106  
Injection pump  
Pump designation : PES6MW100/321RS1232  
EP type number : 0 413 406 226  
Governor  
Governor design. : RSV300...1150MWOA343  
: -2  
Governor no. : 0 420 085 210  
Cust. part No. : 3-7262

Customer-spec. information  
Customer : MAN  
Motor : D0826LE 523  
Power KW : 154.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

L05

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 3.55  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 13.50  
Tolerance mm : + 0.05

Del. quantity  
cm3/1000 strokes : 165.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 365

Rack travel in mm : 4.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 5.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.15  
Rated speed rpm : 1180  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1280  
Tolerance 1/min : ± 15

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1400

---

LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 365  
rack travel mm : 4.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 420  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 925  
rack travel mm : 13.50  
Tolerance mm : ± 0.05

Rated speed rpm : 1125  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.50  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 750  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 150  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1125  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

Rack travel in mm : 12.15  
Rated speed rpm : 1180  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 365  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.08.96  
Test oil : ISO 4113  
Combination No. : 0 400 844 047  
Injection pump  
Pump designation : PES4A90D410RS2294  
EP type number : 0 410 894 011  
Governor  
Governor design. : RQV300...1425AB740L  
Governor no. : 0 420 212 037

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 314  
Power KW : 62.5

## TEST BENCH REQUIREMENTS

Inlet line : 1.2  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 0 681 343 009  
Opening pressure bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check tolerance \*NW : ± 0.75

## BASIC SETTING

Del. quantity cm<sup>3</sup>/1000 strokes : 63.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance cm<sup>3</sup>/1000s. : ± 2.5  
Speed  
Tolerance cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance cm<sup>3</sup>/1000s. : 4.5  
Rated speed rpm : 300  
Rack travel in mm : 7.30  
Tolerance mm : ± 0.10  
Del. quantity cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance cm<sup>3</sup>/1000s. : ± 5.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1460  
guide sleeve  
travel mm : 8.50  
Tolerance mm : ± 0.10

Rated speed rpm : 550  
guide sleeve  
travel mm : 2.85  
Tolerance mm : ± 0.15

Rated speed rpm : 950  
guide sleeve  
travel mm : 5.35  
Tolerance mm : ± 0.15

Rated speed rpm : 775  
guide sleeve  
travel mm : 4.35  
Tolerance mm : ± 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.95  
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1420

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.70  
Rated speed rpm : 1460  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1550  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1700

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 7.30  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 8.80

Rated speed rpm : 445

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### BREAKAWAY

Rack travel in mm : 8.70  
Rated speed rpm : 1460  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.08.96  
Test oil : ISO 4113  
Combination No. : 0 400 844 083  
Injection pump  
Pump designation : PES4A90D410RS2666  
EP type number : 0 410 894 029  
Governor  
Governor design. : RQV300...1400AB1065  
: -5L  
Governor no. : 0 420 212 169  
Cust. part No. : 010 074 0602

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM364  
Power KW : 66.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.3  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 10.95  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0  
Rack travel in mm : 8.70  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

Rated speed rpm : 1500  
Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  2.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.0

---

#### CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 9.90  
Rated speed rpm : 1455  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1575  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1700

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Testing:

L12

Rated speed rpm : 300  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  10.20

Rated speed rpm : 610

---

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 630  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 630  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 9.90  
Rated speed rpm : 1455  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.08.96  
Test oil : ISO 4113

Combination No. : 0 400 876 367

Injection pump  
Pump designation : PES6A90D410RS2710-1  
EP type number : 0 410 896 084

Governor  
Governor design. : RSV350...750A0C2240  
: -2L  
Governor no. : 0 420 232 558

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366  
Power kW : 60.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
 cm3/1000S. : 7.0  
 Rated speed rpm : 350  
 Rack travel in mm : 8.20  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm3/1000 strokes : 9.0  
 Tolerance  
 cm3/1000 strokes : + 2.0  
 Check tolerance  
 cm3/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 4.5  
 Check tolerance  
 cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm3/1000 strokes : 64.5  
 Tolerance  
 cm3/1000 strokes : + 0.5  
 Check tolerance  
 cm3/1000S. : + 2.5  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 3.0  
 Check tolerance  
 cm3/1000S. : 7.0

CONTROL LEVER

control lever  
 position degree : 86.0  
 tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
 rack travel mm : 11.20  
 Rated speed rpm : 784  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 900

Rated speed rpm : 751  
 rack travel mm : 11.20

Rated speed rpm : 785  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 900

Rated speed rpm : 752  
 rack travel mm : 11.20

Rated speed rpm : 786  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 900

Rated speed rpm : 753  
 rack travel mm : 11.20

Rated speed rpm : 787  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 900

Rated speed rpm : 754  
 rack travel mm : 11.20

Rated speed rpm : 788  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 900

Rated speed rpm : 755  
 rack travel mm : 11.20

Rated speed rpm : 789  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 900

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

#### SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 350

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.08.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 076 799  
  
Injection pump  
Pump designation : PES6P120A720RS3352  
EP type number : 0 412 026 780  
  
Governor  
Governor design. : RSV625...1100P2A639  
Governor no. : 0 421 833 551

Cust. part No. : RE67359

Customer-spec. information  
Customer : DEERE  
Motor : 6081HZ005  
Power KW : 188.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 9.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference  
and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 11.90  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 625

---

Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

---

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

---

governor spring  
pre-tension  
click setting x : 3.25

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

##### CONTROL LEVER

control lever  
position degree : 95.0  
tolerance degree :  $\pm$  4.0

---

##### RATED SPEED

rack travel mm : 10.90  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

rack travel mm : 4.00  
Rated speed rpm : 1210  
Tolerance 1/min :  $\pm$  5

---

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

---

rack travel mm : 4.00  
Rated speed rpm : 1210

---

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

---

##### Setting point w/out bumper spring

Rated speed rpm : 625  
rack travel mm : 4.50

---

##### Testing:

Rated speed rpm : 625  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

---

Rated speed rpm : 100



CRT mm min. : > 19.00

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 830  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 400  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 625  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.07.96  
Test oil : ISO 4113

Combination No. : 9 400 030 695

Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214

Governor  
Governor design. : RSV475...1250AOC825R  
Governor no. : 9 420 034 701

Cust. part No. : 3928665

## Customer-spec. information

Customer : CDC  
Motor : 4BT3.9  
Power KW : 82.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.70  
Rated speed rpm : 1315  
Tolerance 1/min : ± 5

rack travel mm : 5.90  
Rated speed rpm : 1395  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1450

rack travel mm : 5.90  
Rated speed rpm : 1395

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 5.00

##### Testing:

Rated speed rpm : 475  
rack travel mm : 5.50  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

Rated speed rpm : 750

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 500

Pressure hPa : 660  
rack travel mm : 12.20  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 460  
rack travel mm : 11.40  
Tolerance mm :  $\pm 0.20$

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.0$

---

BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1315  
Tolerance 1/min :  $\pm 5$

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 15.0$

---

LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.5$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.96  
Test oil : ISO 4113  
Combination No. : 9 400 030 735  
Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215  
Governor  
Governor design. : RSV500...1100A0C848R  
Governor no. : 9 420 034 714

Cust. part No. : 3929411

Customer-spec. information  
Customer : CDC  
Motor : 6BT  
Power KW : 82.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50

Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 500

Rack travel in mm : 5.10  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure

hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 8.50  
Rated speed rpm : 1165  
Tolerance 1/min : +- 5

rack travel mm : 4.50  
Rated speed rpm : 1215  
Tolerance 1/min : +- 5

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1300

rack travel mm : 4.50  
Rated speed rpm : 1215

---

LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 4.60

Testing:

Rated speed rpm : 500  
rack travel mm : 5.10  
Tolerance mm : +- 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 9.65

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 800  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.10

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 8.50  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.96  
Test oil : ISO 4113  
  
Combination No. : 9 400 030 736  
  
Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. :  
Governor no. : 9 420 034 715

Cust. part No. : 3929769

Customer-spec. information  
Customer : CDC  
Motor : 6BT  
Power KW : 88.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 20±.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 9.55  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 425

Rack travel in mm : 5.10  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance

cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance

cm<sup>3</sup>/1000S. : ± 4.5  
Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### RATED SPEED

rack travel mm : 8.50  
Rated speed rpm : 1275  
Tolerance 1/min : ± 5

rack travel mm : 5.60  
Rated speed rpm : 1335  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1465

rack travel mm : 5.60  
Rated speed rpm : 1335

#### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 4.60

#### Testing:

Rated speed rpm : 425  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 9.55  
Tolerance mm : ± 0.05

Rated speed rpm : 800

#### BREAKAWAY

Rack travel in mm : 8.50

Rated speed rpm : 1275  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 425  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.08.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 797  
Injection pump  
Pump designation : PES6P120A720RS3378  
EP type number : 0 412 026 799  
Governor  
Governor design. : RSV450...1000P5A637  
Governor no. : 0 421 833 548

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8365.26.541  
Power KW : 129.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 240  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.20  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 5.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 8.00  
Rated speed rpm : 1070  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1125

---

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 3.70

##### Testing:

Rated speed rpm : 450  
rack travel mm : 4.20  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 560  
Tolerance 1/min : + 50

---

##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 9.00  
Tolerance mm : + 0.05

Rated speed rpm : 500

rack travel mm : 9.05  
Tolerance mm : +- 0.10

Rated speed rpm : 330  
rack travel mm : 9.60  
Tolerance mm : +- 0.20

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

---

#### BREAKAWAY

Rack travel in mm : 8.00  
Rated speed rpm : 1070  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 450  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.96  
Test oil : ISO 4113

Combination No. : 0 402 735 810

Injection pump  
Pump designation : PES5P120A720/3LS7310  
EP type number : 0 412 725 817

Governor  
Governor design. : RQ325/1000PA1106-1  
Governor no. : 0 421 801 700

Cust. part No. : 3-7324

Customer-spec. information  
Customer : MAN  
Motor : D2865LUH06  
Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

MO4

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.80  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 5

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 10.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.90  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 2.50  
Tolerance mm : + 0.10

Rated speed rpm : 1071  
guide sleeve  
travel mm : 7.35  
Tolerance mm : + 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.01  
Tolerance mm : + 0.10

Rated speed rpm : 777  
guide sleeve  
travel mm : 7.01  
Tolerance mm : + 0.10

Rated speed rpm : 408  
guide sleeve  
travel mm : 4.50

Tolerance mm : + 0.10

Rated speed rpm : 530  
guide sleeve  
travel mm : 7.00  
Tolerance mm : + 0.10

Rated speed rpm : 1220  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 700

Rack travel in mm : 15.50  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 11.20  
Rated speed rpm : 1053  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  8.00

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

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Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 500  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 1000  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1250  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 244.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1053



Tolerance 1/min :  $\pm$  8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.96  
Test oil : ISO 4113

Combination No. : 0 402 735 811

Injection pump  
Pump designation : PES5P120A720/3LS7348  
EP type number : 0 412 725 818

Governor  
Governor design. : RQ325/1000PA1106-2  
Governor no. : 0 421 801 750

Cust. part No. : 3-7392

Customer-spec. information  
Customer : MAN  
Motor : D2865LUH06  
Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

M08

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.80  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 5

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.90  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 2.50  
Tolerance mm : + 0.10

Rated speed rpm : 1059  
guide sleeve  
travel mm : 7.34  
Tolerance mm : + 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.00  
Tolerance mm : + 0.10

Rated speed rpm : 401  
guide sleeve  
travel mm : 4.29  
Tolerance mm : + 0.10

Rated speed rpm : 530  
guide sleeve  
travel mm : 7.00  
Tolerance mm : + 0.10

Rated speed rpm : 1210

guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 700

Rack travel in mm : 15.50  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure

hPa : 2000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 11.20  
Rated speed rpm : 1053  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  8.00

#### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 500

rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 1000  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1250  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.15

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 244.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 750  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1053  
Tolerance 1/min :  $\pm$  8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.08.96  
Test oil : ISO 4113

Combination No. : 0 402 744 805

Injection pump  
Pump designation : PES4P120A320RS7312  
: -1  
EP type number : 0 412 724 803

Governor  
Governor design. : RQ400/1200PA1319  
Governor no. : 0 421 801 813

Cust. part No. : 51.11103-7553

## Customer-spec. information

Customer : MAN  
Motor : D 0824 LOH 05  
Power KW : 114.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 087

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 5.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 1000

---

Rack travel in mm : 13.05  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 400

---

Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 400

guide sleeve  
travel mm : 2.94  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1256  
guide sleeve  
travel mm : 7.33  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1200  
guide sleeve  
travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 443  
guide sleeve  
travel mm : 4.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 530  
guide sleeve  
travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1390  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

Rated speed rpm : 1269

Rack travel in mm : 12.05  
Tolerance mm :  $\pm$  1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 12.05  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1335  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1400

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 400  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 433  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 300

CRT mm min. :  $>$  -1.00

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1200  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 200  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 500  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.25

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0



Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.05  
Rated speed rpm : 1250  
Tolerance 1/min : +- 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.90  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 12.0

---

#### LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.08.96

Test oil : ISO 4113

Combination No. : 0 403 476 146

Injection pump

Pump designation : PES6MW100/320RS1245

EP type number : 0 413 406 247

Governor

Governor design. : RSV300...1100MWOA400

Governor no. : 0 420 085 293

Cust. part No. : 11032700

Customer-spec. information

Customer : VCE

Motor : TD 63KDE

Power kW : 90.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5

Test nozzle holder assembly

: 0 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.05

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 105.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 5.40  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 5.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

##### CONTROL LEVER

control lever  
position degree : 81.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.30  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1265  
Tolerance 1/min : ± 15

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1420

rack travel mm : 4.00  
Rated speed rpm : 1275

---

##### LOW IDLE

control lever  
position degree : 106.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 4.90

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.40  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 580  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

---

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.35  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 820  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 770  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 290  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 120  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

Note remarks

Edition : 22.08.96  
Test oil : ISO 4113

Injection pump  
Pump designation : PES4A90D410RS2666  
EP type number : 0 410 894 029

Governor  
Governor design. : RSV350...1400A0C2006  
                  : -1L  
Governor no. : 0 420 232 449

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364  
Power KW : 66.0

Inlet line : 2.3

Test oil inlet	
temp. °C	: 40
Tolerance °C	: ± 2.0

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure : 173.5 bar  
Tolerance bar :  $\pm 1.5$

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

Test pressure bar : 26.0  
Tolerance bar :  $\pm$  1.0

```
Phasing      : 0-90-180-270
Tolerance    : +- 0.50
Check
tolerance °NW : +- 0.75
```

Rated speed rpm : 1380

Rack travel in mm : 10.45  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  2.5

Speed \_\_\_\_\_  
Tolerance \_\_\_\_\_  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 7.0

Rack travel in mm : 7.90  
Tolerance mm :  $\pm$  0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20  
governor spring  
pre-tension  
click setting x : 4.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

#### CONTROL LEVER

control lever  
position degree : 109.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 9.40  
Rated speed rpm : 1435  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00  
Rated speed rpm : 1495  
Tolerance 1/min :  $\pm$  15  
rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1575

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 7.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 475  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

---

#### TORQUE CONTROL

Rated speed rpm : 1380  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.40  
Rated speed rpm : 1435  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.08.96  
Test oil : ISO 4113  
Combination No. : 0 400 874 248  
Injection pump  
Pump designation : PES4A90D410RS2728  
EP type number : 0 410 894 030  
Governor  
Governor design. : RSV350...750A0C2240  
: -3L  
Governor no. : 0 420 232 559

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364  
Power KW : 39.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

M22

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5  
Rated speed rpm : 350  
Rack travel in mm : 8.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed



Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20  
governor spring  
pre-tension  
click setting x : 2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

##### CONTROL LEVER

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 11.00  
Rated speed rpm : 784  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 850  
Rated speed rpm : 751  
rack travel mm : 11.00

Rated speed rpm : 785  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 752  
rack travel mm : 11.00

Rated speed rpm : 786  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 753  
rack travel mm : 11.00

Rated speed rpm : 787  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 754  
rack travel mm : 11.00

Rated speed rpm : 788  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

Rated speed rpm : 755  
rack travel mm : 11.00

Rated speed rpm : 789  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  15

Rated speed rpm : 100

CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.08.96  
Test oil : ISO 4113  
Combination No. : 0 400 876 331  
Injection pump  
Pump designation : PES6A90D410RS2710  
EP type number : 0 410 896 082  
Governor  
Governor design. : RSV350...1400A0C2006  
: -2L  
Governor no. : 0 420 232 453

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.3  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 000  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

M25

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1380  
Rack travel in mm : 10.75  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 65.5  
Tolerance  
cm3/1000 strokes : ± 0.5  
Check tolerance  
cm3/1000S. : ± 2.5  
Spreed  
Tolerance  
cm3/1000 strokes : 3.0  
Check tolerance  
cm3/1000S. : 7.0  
Rated speed rpm : 350  
Rack travel in mm : 8.10  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

##### CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 9.70  
Rated speed rpm : 1435  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1505  
Tolerance 1/min : ± 15

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1650

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 8.10  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

##### TORQUE CONTROL

Rated speed rpm : 1380  
rack travel mm : 10.75  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 11.85  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 11.40  
Tolerance mm : ± 0.10

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

---

#### BREAKAWAY

Rack travel in mm : 9.70  
Rated speed rpm : 1435  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.08.96  
Test oil : ISO 4113  
Combination No. : 0 402 034 700  
Injection pump  
Pump designation : PES4P120B120RS3379  
EP type number : 0 412 024 702  
Governor  
Governor design. : RQV475...1100PA1314K  
Governor no. : 0 421 815 543

Cust. part No. : 3928601

## Customer-spec. information

Customer : CDC  
Motor : 4BTA-A  
Power KW : 93.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 093  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 475

Rack travel in mm : 5.70  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 475  
guide sleeve  
travel mm : 1.59  
Tolerance mm : + 0.70

Rated speed rpm : 1163  
guide sleeve  
travel mm : 7.66  
Tolerance mm : + 0.15

Rated speed rpm : 931  
guide sleeve  
travel mm : 5.89  
Tolerance mm : + 0.25

Rated speed rpm : 670  
guide sleeve  
travel mm : 3.53  
Tolerance mm : + 0.25

Rated speed rpm : 1660  
guide sleeve  
travel mm : 13.50

Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 115.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1155  
Tolerance 1/min : + 15

rack travel mm : 6.70  
Rated speed rpm : 1230  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 475  
rack travel mm : 5.70  
Tolerance mm : + 0.20

Rated speed rpm : 400

CRT mm min. : > 6.80

Rated speed rpm : 550

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 750  
rack travel mm : 11.30  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 550  
rack travel mm : 11.00  
Tolerance mm :  $\pm 0.20$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 9.70  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1100

Pressure hPa : 765  
rack travel mm : 11.10  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 600  
rack travel mm : 10.10  
Tolerance mm :  $\pm 0.20$

---

#### START CUT-OUT

Rated speed rpm :  $> 100$   
Rated speed rpm :  $< 375$

Check  
speed 1/min :  $> 80$   
Check  
speed 1/min :  $< 385$

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.0$

---

#### BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 1155  
Tolerance 1/min :  $\pm 15$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 20.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 25.0$

---

#### LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.0$   
Spreed



Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.08.96  
Test oil : ISO 4113

Combination No. : 0 402 034 701

Injection pump  
Pump designation : PES4P120B120RS3379  
EP type number : 0 412 024 702

Governor  
Governor design. : RQV475...1250PA1316K  
Governor no. : 0 421 815 544

Cust. part No. : 3928600

## Customer-spec. information

Customer : CDC  
Motor : 4BTA-A  
Power KW : 97.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

NO4

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 475

Rack travel in mm : 5.70  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 475  
guide sleeve  
travel mm : 1.59  
Tolerance mm : +- 0.20

Rated speed rpm : 1313  
guide sleeve  
travel mm : 9.12  
Tolerance mm : +- 0.15

Rated speed rpm : 985  
guide sleeve  
travel mm : 6.26  
Tolerance mm : +- 0.25

Rated speed rpm : 680  
guide sleeve  
travel mm : 3.62  
Tolerance mm : +- 0.25

Rated speed rpm : 1660  
guide sleeve  
travel mm : 13.50

N05

Tolerance mm : +- 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : 1200

Del. quantity

cm<sup>3</sup>/1000 strokes : 143.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance

cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever

position degree : 118.0

tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 10.50

Rated speed rpm : 1315

Tolerance 1/min : +- 15

rack travel mm : 6.00

Rated speed rpm : 1390

Tolerance 1/min : +- 5

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1500

##### LOW IDLE

control lever

position degree : 76.0

tolerance degree : +- 4.0

##### Testing:

Rated speed rpm : 475

rack travel mm : 5.70

Tolerance mm : +- 0.20

Rated speed rpm : 400

CRT mm min. : > 7.00

Rated speed rpm : 550

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 550  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 800  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 680  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  375

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  385

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 1315  
Tolerance 1/min :  $\pm$  15

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

##### LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed

Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.95  
Test oil : ISO 4113

Combination No. : 0 402 196 708

Injection pump  
Pump designation : PES6P120A720RS3362  
EP type number : 0 412 026 787

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 029

Cust. part No. : RE 64860

Customer-spec. information  
Customer : DEERE  
Motor : 6076ADW31  
Power KW : 140.0

## TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0  
Tolerance bar : +- 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

N08

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 17.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery mark

\*NW after s.o.d. : 7.75  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack  
travel : 15.00  
Tolerance mm : +- 0.50  
Difference ° CS : 3.25

## (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(ALL P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

#### (C) INJECTION PUMP WITH POSITIONER

##### TEST POINT V1

Rated speed rpm : 1100  
Uact V : 2.800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 139.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700  
Uact V : 2.800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 425  
Uact V : 1.580  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425  
Uact V : 1.580  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.060

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.08.96  
Test oil : ISO 4113

Combination No. : 0 402 746 613

Injection pump  
Pump designation : PES6P120A320RS7372  
EP type number : 0 412 726 940

Governor  
Governor design. : RQV250...1250PA1283K  
Governor no. : 0 421 815 516

Cust. part No. : 3866785

## Customer-spec. information

Customer : CDC  
Motor : 6BTA  
Power KW : 164.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 11.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.40  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.39  
Tolerance mm : ± 0.20

Rated speed rpm : 1305  
guide sleeve  
travel mm : 7.93  
Tolerance mm : ± 0.15

Rated speed rpm : 864  
guide sleeve  
travel mm : 5.36  
Tolerance mm : ± 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.18  
Tolerance mm : ± 0.25

Rated speed rpm : 1860  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.00  
Rated speed rpm : 1310  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 7.40  
Tolerance mm : ± 0.20

Rated speed rpm : 275  
CRT mm min. : > 8.20  
Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 900

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250  
Pressure hPa : 550  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 265  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 250

Check  
speed 1/min : > 80

N13

Check  
speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1310  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.08.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 615  
  
Injection pump  
Pump designation : PES6P120A320RS7419  
EP type number : 0 412 726 961  
  
Governor  
Governor design. : RQV300...1300PA1289K  
Governor no. : 0 421 815 520

Cust. part No. : 386 6800

## Customer-spec. information

Customer : CDC  
Motor : 6CTA  
Power KW : 249.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 12.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.60  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 6.35  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.71  
Tolerance mm : ± 0.20

Rated speed rpm : 1322  
guide sleeve  
travel mm : 9.57  
Tolerance mm : ± 0.15

Rated speed rpm : 861  
guide sleeve  
travel mm : 6.74  
Tolerance mm : ± 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 5.06  
Tolerance mm : ± 0.25

Rated speed rpm : 1720  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.60  
Rated speed rpm : 1320  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1470  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1575

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 6.35  
Tolerance mm : ± 0.20

Rated speed rpm : 250  
CRT mm min. : > 7.80  
Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.60  
Tolerance mm : + 0.05  
  
Rated speed rpm : 800  
rack travel mm : 12.20  
Tolerance mm : + 0.10  
  
Rated speed rpm : 1100  
rack travel mm : 12.55  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 9.70  
Tolerance mm : + 0.20  
  
Rated speed rpm : 1100  
  
Pressure hPa : 880  
rack travel mm : 11.80  
Tolerance mm : + 0.20  
  
Pressure hPa : 385  
rack travel mm : 10.50  
Tolerance mm : + 0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm3/1000 strokes : 206.0  
Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm3/1000 strokes : 122.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 3.0

---

#### BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1320  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.70  
Tolerance mm : + 0.20  
Del. quantity  
cm3/1000 strokes : 176.5  
Tolerance  
cm3/1000 strokes : + 20.0  
Check tolerance  
cm3/1000S. : + 25.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm3/1000 strokes : 32.5  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 5.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.08.96  
Test oil : ISO 4113

Combination No. : 0 402 776 838

Injection pump  
Pump designation : PES6P120A720RS7382  
EP type number : 0 412 726 943

Governor  
Governor design. : RSV625...1100POA547  
: -14  
Governor no. : 0 421 833 545

Cust. part No. : RE67358

Customer-spec. information  
Customer : DEERE  
Motor : 6081 HZ001  
Power KW : 214.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

\*NW after s.o.d. : 9.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 14.00  
Difference °CS : 2.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.45  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 625

Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 2000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1235

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1235

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 625  
rack travel mm : 4.60

##### Testing:

Rated speed rpm : 625  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 2000

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 1350  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 630  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 625  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.07.96  
Test oil : ISO 4113  
Combination No. : 0 403 466 160  
Injection pump  
Pump designation : PES6MW100/120RS1240  
EP type number : 0 413 406 239

Governor  
Governor design. : RSV500...1100MW2A378  
Governor no. : 0 420 085 261

Cust. part No. : 3927129

Customer-spec. information  
Customer : CDC  
Motor : 6 CTA  
Power KW : 173.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Beginning of delivery differende  
and maximum rack  
travel : 15.00  
Difference °CS : 1.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5  
Rated speed rpm : 500

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20  
governor spring  
pre-tension  
click setting x : 2.75

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

##### CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.40  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

rack travel mm : 6.30  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  5

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1375

rack travel mm : 6.30  
Rated speed rpm : 1230

---

##### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 4.70

##### Testing:

Rated speed rpm : 500  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 790  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 620  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

N24

Rack travel in mm : 11.40  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

LOW IDLE

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.08.96  
Test oil : ISO 4113  
Combination No. : 0 403 466 167  
Injection pump  
Pump designation : PES6MW100/120RS1240  
EP type number : 0 413 406 239

Governor  
Governor design. : RSV475...1000MW2A388  
Governor no. : 0 420 085 268

Cust. part No. : 3929173

Customer-spec. information  
Customer : CDC  
Motor : 6 CTA  
Power KW : 171.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery differende

and maximum rack  
travel : 15.00  
Difference ° CS : 1.50

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.95  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.90  
Rated speed rpm : 1055  
Tolerance 1/min :  $\pm$  5

rack travel mm : 5.80  
Rated speed rpm : 1135  
Tolerance 1/min :  $\pm$  5

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1230

rack travel mm : 5.80  
Rated speed rpm : 1135

##### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 4.70

##### Testing:

Rated speed rpm : 475  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00



---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 790  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 620  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.90  
Rated speed rpm : 1055  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet